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ABSTRACT

Reflecting diversified views, this National Reading Conference yearbook contains 45 articles in the field of literacy theory and research. Articles and their authors include: "The Myth of Teaching" (J. V. Hoffman); "Reading-Writing Connections: The Relations among Three Perspectives" (T. Shanahan and R. J. Tierney); "Motivated Literacy" (M. M. McCaslin); "The Effect of Reader Stance on Students' Personal Understanding of Literature" (J. E. Many); "Joining the Debate: Researchers and Reading Education Curriculum" (P. Shannon); "The NRC Yearbooks Database" (R. S. Baldwin and others); "The Curricular Experiences of At-Risk First Graders in Programs Designed to Promote Success" (M. Lindsey); "Teachers' Developing Insights about the Use of Children's Literature for Language and Literacy Growth" (J. V. Hoffman); "Becoming a Teacher of Literacy: Novice Whole Language Teachers in Conventional Instructional Environments" (N. Padak and O. G. Nelson); "The Effects of Structural Factors of Expository Texts on Teachers' Judgments of Writing Quality" (B. E. Cox); "A Longitudinal Study of Preservice Teachers' Knowledge Structures" (B. A. Herrmann); "Shared Book Reading in an Early Start Program for At-Risk Children" (J. M. Mason and others); "Effect of Early Literacy Intervention on Kindergarten Achievement" (L. M. Phillips and others); "Parents' Perceptions of Children's Reading and Writing Development in a Whole-Language Kindergarten Program" (B. J. Bruneau and others); "A Syllabic-Unit Approach to Teaching Decoding of Polysyllabic Words to Fourth- and Sixth-Grade Disabled Readers" (J. Shelfelbine); "The Influence of Phonics Instruction on Spelling Progress" (L. Nelson); "Assessing Children's Inferencing Strategies" (S. B. Neuman); "Developing Low-Performing, Fourth-Grade, Inner City Students' Ability to Comprehend Narrative" (J. H. Mosenthal); "Lexical Cohesion in Comprehension and Composition: A Synthesis of Research Issues" (R. B. Speaker, Jr. and others); "The Construction of Narratives by Good and

Poor Readers" (R. M. Weber); "Interactive Teaching and Learning: Facilitating Learning Disabled Students' Transition From Novice to Expert" (M. A. Gallego and others); "What Determines Course Achievement? An Investigation of Several Possible Influences on Academic Outcomes" (A. J. Pace and others); "A Descriptive Analysis of Good Readers' and Writers' Concepts of Authorship at Grades One, Three and Five" (R. J. Nistler); "Constructing Conversation: Peer Responses to Student Writing" (S. J. McCarthey); "Early Literacy Strategies: Activities Represented in Current Basal Readers" (L. M. Morrow and R. Parse); "Types of Writings Included in Basal Reading Programs, Kindergarten through Second Grade: An Investigation of Changes from 1983 to 1989" (J. Flood and D. Lapp); and "Reading Strategies of Marginally Literate Workers: A Case Study" (V. H. Denny). (MG)

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LITERACY THEORY AND RESEARCH: ANALYSES FROM MULTIPLE PARADIGMS

Thirty-ninth Yearbook
of
The National Reading Conference

JERRY ZUTELL
Ohio State University

SANDRA MCCORMICK
Ohio State University

With the editorial assistance of

MONA CONNOLLY
Ohio State University

PATRICIA O'KEEFE
NRC Headquarters

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PREFACE

As was true last year, we are highly pleased with the content of the 39th *NRC Yearbook*. When we put the final touches on the Table of Contents and were able to see as a whole the scope of this year's articles, several things were evident. First, a glance down through the titles shows such diversity that it appears there should be something here for almost everyone. Second, an examination of the authors of these articles discloses an excellent mix of work by the most respected individuals in our field, along with perspectives from many promising new contributors. Third, the titles, as well as the content of the articles, reveal analyses from varied philosophical and methodological paradigms—as reflected in the title we have chosen for the 1990 edition of the *Yearbook*. These diversified views are a strength of the National Reading Conference, and we believe, of this publication.

The *Yearbook* is truly the work of the National Reading Conference membership. This year 77 members served on our editorial advisory review board and an additional 27 served as guest reviewers. Reviewers maintained high standards in recommending manuscripts for acceptance and provided concrete, thorough suggestions for revision. Of the 104 general papers reviewed, 41 are published in this 39th *Yearbook;* there also are 3 special papers—the NRC Annual Review of Research, one invited address, and the student award paper. These articles, along with the Presidential Address, represent the work of 99 NRC members. The special papers except for the Presidential Address, as with the general papers, all received outside, blind reviews. The overall acceptance rate for this *NRC Yearbook* was 41%.

We thank the authors for their high quality research, reviews, and position papers, feeling certain that these add important knowledge to our literature base in the literacy field. Our deep appreciation also goes to the reviewers for their conscientious attention to their tasks. We wish, also, to give special recognition to Mona Connolly, our graduate student and editorial assistant for the *Yearbook*, for her intelligent and careful attention to all manner of details and to Pat O'Keefe, our liaison with NRC Headquarters, for her patience and knowledge. Our job has been made easier by the contributions of so many competent professionals.

Jerry Zutell
Sandra McCormick

P. David Pearson

OSCAR S. CAUSEY AWARD

The Oscar S. Causey Award is given each year for outstanding contributions to reading research. Dr. Causey was the founder of the National Reading Conference and served many years as Chair of its Executive Committee.

This year's recipient of the Oscar S. Causey Award, P. David Pearson, is enormously well known across our field. First, his interests cross many people's interests; he has an abiding interest in research, an enduring interest in practice, and an unfaltering belief in the benefits of research to practice and practice to research. Second, he writes well and writes a lot; he speaks well and speaks a lot. Third, and by far most important, what he has to say is so thoughtfully considered. I believe it is his depth of knowledge and his intellectual honesty that satisfies.

Several years ago, David and I were both scheduled to present in a "what research has to say to instruction" session at a regional IRA meeting. We were to synthesize research findings about comprehension and vocabulary and to point to those findings that had a strong enough research base to allow us to suggest with confidence that they be implemented in classrooms.

David synthesized the findings intelligently and interestingly. I particularly noticed how careful he was about staying with what the research said, and not offering things he believed were *probably* true as being true. He listed five findings, and then a sixth that he *believed* would turn out to be true, but stated clearly that it could not be supported with research. From that time on I have seen David, time and time again, clearly distinguish between what research suggests and his own *opinions*.

Depth and breadth of knowledge and honesty are hallmarks of David's work. This is important because David is so influential among practitioners. Of course, it is not only teachers whom David informs. Certainly his students, other scholars, and researchers have benefited from his work. I focus on teachers because many are not as aware of the research as researchers are, and therefore can be more susceptible to accepting the opinions of authorities as grounded in research.

An incident that happened to me speaks directly to the enormous influence David has with teachers. I was being introduced for a talk I was to give at the local IRA in a southern state by a teacher who did not know of my work first hand. The individual had called me for a vitae, and from it had written a formal and rather lengthy account of a variety of my endeavors. Finally, with a flourish, she waved her notes aside, looked directly at the audience and said, "Look, Dr. Beck must be pretty good, because even P. David cites her."

I believe David Pearson has made enormously useful contributions to our field. I think we are lucky to have him. And so, it is truly a privilege to present the 1989 Oscar S. Causey Award to P. David Pearson.

Presented by Isabel L. Beck
December 1989

Michael L. Kamil

ALBERT J. KINGSTON AWARD

The annual Albert J. Kingston Award for Service to the National Reading Conference was established in 1985 to honor Professor Albert Kingston for years of dedicated service to NRC. Professor Kingston, an educational psychologist and reading specialist, was President of NRC in 1965–66.

The 1989 recipient of the prestigious Albert J. Kingston Award is Michael L. Kamil. Michael Kamil received his Ph.D. from the University of Wisconsin in 1969. Currently he is Associate Professor of Education at The Ohio State University. During the past 20 years, he has authored, co-authored, or edited over 40 books, book chapters, and journal articles for the literacy field; has received research grants from the National Science Foundation, the National Conference on Research in English, the USOE Right to Read Program, and other organizations; and has presented papers at over 60 national and international meetings of scholars. In 1983 he received the Milton Jacobson Readability Research Award.

One of the great benefits of receiving the Albert J. Kingston Award is that you have the privilege of helping to choose the recipient for the next year. Everyone who receives the award in an organization this large must have the same humbling feeling—"Why me, when there are so many who are equally deserving?" NRC is, after all, run by the membership. Its success and its vitality depend on a membership willing to serve its purpose.

The big bonus of the Albert Kingston Service Award is that you get the chance to help correct any possible error of the previous year by picking your own candidate for the coming year. I cannot say, of course, how much discussion has gone into previous choices, but this year the choice was so clear there was almost no discussion. Everyone involved in the decision agreed that this year *we have to give the Albert Kingston award to Michael Kamil*! I'm sure that a vote of the entire membership would confirm our choice.

When I tried to list all Michael has done for NRC, it seemed easier to try to think of something he has not done. That proved even more impossible. He has been truly a Man for All Seasons to us. Michael Kamil has served on the Editorial Advisory Review Board of the *Yearbook*; served as editor or coeditor of three *NRC Yearbooks*; served on the Publications Committee, of which he is currently the chairperson; served as a member of the Board of Directors; chaired the Subcommittee on Standards and Ethics; served on the Editorial Advisory Board of the *Journal of Reading Behavior;* served as editor of the *Journal of Reading Behavior;* served as a reviewer of the National Reading Conference program proposals; and been a frequent contributor to the conference program and to the *NRC Yearbook*.

I believe I am safe in saying that Michael is loved by everyone in this organization who knows him, not just for all that he gives to us but for the way that he makes us feel when we are around him. We love you, Michael, and even if it doesn't say so on the plaque you are receiving, we wanted you to know it and to consider the Kingston Award as our way of saying "Thank you."

Presented by Thomas H. Estes
December 1989

THE MYTH OF TEACHING[1]

James V. Hoffman
University of Texas, Austin

The story is told about a famous astronomer giving a lecture to a crowded hall of students and parents over such basic concepts as the rotation of the earth, the orbiting of the planets, the place of the solar system in our galaxy, and so on. At the end of the talk, an elderly woman in the back of the room stood and shouted: "All of what you say is rubbish. Everyone knows that the earth is flat and is being held up on the back of a giant turtle." The scientist paused briefly and then responded, "Well, if that is the case madam, then what is the giant turtle standing on?" The woman shot back, "Very cute, but sorry, sonny, it's turtles all the way down!"

As in this anecdote, as in the world at large, myth and science are typically portrayed as antethetical to one another. Science is truth; myth is falsehood. Science is serious; myth is humorous. Such a portrayal is misleading. Science is the way in which the verifiable knowledge of the world is represented by mankind. Scientific knowledge is advanced through the kind of systematic inquiry that we refer to as research. Myth, in contrast, is the way in which mankind has attempted to explain and understand that which is not readily verified. Although scientific knowledge has advanced enormously over the millenia, it has barely begun to address, let alone answer, the questions that give birth to myth.

Many find the myths of ancient cultures as trivial, or as revealing of ignorance, but this is because myths are locked, in terms of expression, in the science of that day, not because they reveal anything less than fundamental human wondering. Many think of myth as only something of the past, not of the present. Not so. Myth is as alive and important today as it has ever been. As humans we continue to struggle to understand our cosmos, our origins, our purpose, and our transcendency. Within each of us lives a personal mythology that is constructed in a fashion compatible with our scientific knowledge. Our personal myths govern our interactions with the world; our shared myths govern our social institutions from family, to state, to church, and all of these find expression as we communicate with one another through language and the arts. Within this mythology, we find the assumptions, values, and beliefs that are the powerful, driving forces in everyday living.

The roots of teaching are to be found more in mythology than in science. The evolution of teaching from labor to a professional status has come as a result of shifts in societal values, changing perceptions of schooling, and an expanded economic reality, not as a result of scientific breakthroughs. We sometimes forget that the historical antecedents for our profession are not particularly inspiring (Powell, 1980).

---

[1] Presidential Address, The National Reading Conference, Wednesday, November 29, 1989.

It was not until the 1950s that teaching achieved, in some small sense, a professional status. A positive mythology about teaching was emerging. Teachers were bright, knowledgeable, and committed individuals (mostly women) deserving of respect and appreciation. Teachers had the power to reach any student and make a profound difference in that student's life. Schools were important institutions where significant learning took place. The teacher was at the center of the educational enterprise, not the principal, not the district, and certainly not the state. The pay was low, the hours long, and the conditions not always ideal, but this was all part of the myth that inspired those both inside and outside of the profession. It was a Norman Rockwell painting.

It was, perhaps, too good to be true. Out of the Cold War and Sputnik, a crisis in confidence in America exploded. Schools were attacked for being ineffective and unresponsive. Commission after commission was formed to study and make recommendations on correcting the ills of schools. The fundamental question being asked was: How do we judge the effectiveness of what is going on in schools? In effect, the myth that had been building for decades was being challenged. To those outside of the profession it became obvious that there was no scientific knowledge base for teaching and schooling to draw on in defense of teaching practices. There were assumptions, beliefs, and values informed by personal experience and supplemented by craft knowledge that gave shape to a mythology, but no scientific knowledge base informed through research.

Our efforts to develop a science of teaching emerged out of this crisis. One has only to look at the editions of the *Handbook of Research in Teaching*, published over the past two decades, to see the roots of and the fruits of this work (Travers, 1973; Wittrock, 1986). Within the field of literacy education, we can point with considerable pride in the emergence of research communities like the National Reading Conference and scholarly publications like the *Journal of Reading Behavior*, the *Yearbook of the National Reading Conference*, and the *Reading Research Quarterly*.

I am concerned, though, that in our efforts to construct a science of teaching (of teaching literacy in particular) we have ignored the power of myth in teaching. As a research community interested in language and social institutions, I fear we have not given over sufficient attention to the important relationship between science and mythology. I become more convinced daily as I work with teachers in preservice and inservice settings that research is intruding on rather than informing to good teaching. My thesis is a simple one: There is far more harm being done in classrooms today in the name of research than there is good. The obvious victims are the children. Less obvious victims, but no less important, are the teachers and the researchers themselves. The teaching community and the research community are becoming more and more alienated, at just the time when we need each other most. Not one of us can take pride in this situation, nor can we simply sit on the sidelines and take no action.

These are the areas I would like to explore with you through this essay. It is toward a positive intersection of myth and science in teaching that I will direct my thoughts. Further, I will reflect on our responsibilities as a research community to address this problem. I apologize, in advance, for taking a somewhat parochial view on this topic. I will base my argument around areas of activity that I have observed and studied first hand. Later, I will attempt to broaden this treatment to include a more national perspective.

I begin with a consideration of the field of research in teaching, a field that emerged in the 1960s and gained a national identity during the 1970s. Research in teaching was dominated through the decade of the 1970s by the process-product paradigm (see Dunkin & Biddle, 1974). Working within this paradigm, researchers were able to document not only that teaching can make a difference in students' learning, but also that certain teaching processes are associated with positive learning outcomes. The correlates of effective teaching were chronicled in unending list after unending list. By the beginning of the 1980s, it became clear in the research in teaching community that studies in this process-product tradition had taken us just about as far as they could toward understanding effective teaching. Critics pointed out this research did little to advance a theory of teaching and learning, was unidimensional in its focus on teachers' behavior affecting student behaviors, failed to capture the multidimensionality of classroom life, and suffered from its tight focus on the teaching and learning of so called "basic-skills." As Lee Shulman (1986) has noted, it was a paradigm that satisfied the questions that gave birth to it in the first place. Having done so, it died.

Although the research community may have abandoned the paradigm, administrators and policy makers have not let it rest. With the increasing pressure for reform in education in general and for teacher accountability in particular, teacher evaluation systems drawing on the findings from the process-product literature began to appear across the country (Defino & Hoffman, 1984).

These instruments took the so-called correlates of effective teaching and transformed them into checklists organized around a dualistic conception of a teacher as manager and instructor. As a manager, the teacher is responsible for establishing a classroom work system that maximizes academic time and engaged time. As an instructor, the teacher is responsible for engaging the students in direct instruction focused on specific, measurable learning outcomes.

Through the use of these instruments, hopes were raised among educationally minded reformers for weeding out the incompetent from the profession, for educating the mediocre toward more effective practices, and for rewarding those who are truly outstanding (Hoffman & Defino, 1985). There was some resistance among experienced, professional educators to the use of these instruments to evaluate teaching. The initial breakthrough came when these systems were introduced into the evaluation of beginning teachers—a particularly vulnerable group in a political sense. The beginning teacher is neither fish nor fowl and, given the notion that gatekeeping was viewed as an important step toward reform, this is where the systems were first put into use. Their use was established in this one particular setting and gradually expanded to become a part of the evaluation for all teachers and used as the basis for merit considerations, career advancement, and even dismissal.

The fact is, these instruments have failed miserably in realizing their intended outcomes. Although many states across the country, including Texas, mandate the use of evaluative instruments drawing on the process-product research base, there are few examples of any teachers ever failing to pass them (Hoffman, Edwards, O'Neal, Barnes, & Paulisson, 1986). Indeed, the typical pattern is for teachers to "top out" on such assessments.

To assert that these instruments have not achieved their intended purpose is not to say that they have not had an effect on teaching. Clearly, they have. To characterize this effect, I would like to diverge for a moment to describe very briefly and in very simple terms some notions regarding teaching and learning that draw heavily on the work of Walter Doyle, Thomas Green, and some of my own studies of classroom practices.

Doyle (1983) has proposed that perhaps a more powerful way to examine teaching and learning in classrooms than the process-product tradition is to be achieved by focusing not on what the teacher is doing or saying, but rather on what the students are doing and saying and, by inference, thinking. He describes the "academic work" that students are engaged in in terms of a task model. From the student's perspective, the classroom is seen as a place where work is to be completed and products generated for some kind of evaluation by the teacher. The kinds of products generated may range in scope from a simple worksheet on the letter B completed in the first grade to a complex literary response assignment in a senior level honors English course.

We can think of these tasks in terms of many dimensions. Two of the most important are risk and ambiguity. Risk refers to the likelihood that a task can be accomplished successfully by students. The basic measure of risk is how well the students might do on a particular task if they were given no instruction at all. Completing a page of problems in mathematics that involves some previously learned algorithm would be a low-risk task since the students could likely succeed on their own.

Ambiguity refers to the clarity of the task in terms of the product to be generated. Completion of the problems on a mathematics practice page is low in ambiguity characteristics. It is quite easy for the teacher to express, and for the students to understand, just what is expected. In contrast, consider the example of a Junior-level teacher trying to teach students how to compose a persuasive essay. Here, there is greater inherent ambiguity in the task because the teacher may have some difficulty in describing precisely what constitutes a high quality persuasive essay. In turn, it may be difficult for the students to understand clearly what the teacher's expectations are.

Ambiguity and risk, as task characteristics, can operate independently of one another. One can, for example, increase the risk characteristics of a task without affecting ambiguity. A teacher might be interested in developing a student's automaticity in decoding through repeated practice with a story. The teacher requires that a particular section of the text be read at a minimum rate before allowing the student to move one. The teacher has increased the risk in terms of the likelihood of success but is still dealing with an unambiguous task.

Although the dimensions of risk and ambiguity may have some independence from one another, they are not independent of the kinds of learning one might be interested in fostering. To illustrate this point, consider a model with risk identified on one axis and ambiguity on the other as a heuristic for considering task to learning relationships (see Figure 1). The model is divided into four quadrants and there is a diagonal line radiating out from the origin at a 45 degree angle with a positive slope.

The diagonal line represents a continuum of learning distinguished by the amount

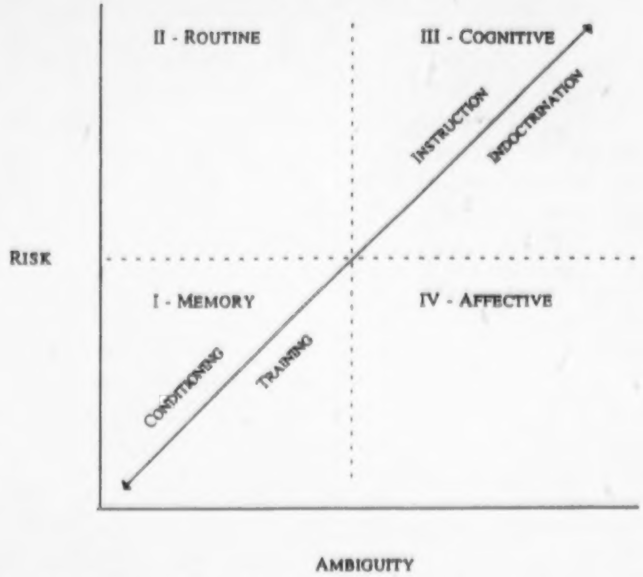

Figure 1. A heuristic model for considering teaching-learning-task relationships.

of cognitive activity required on the part of the student. The continuum ranges from the simple, stimulus-response type learning to the level of critical thinking that involves the application of both concepts and values. Several types of "teaching" are also represented on the diagonal that are associated with the various levels of cognitive activity. Conditioning is a type of teaching one associates with stimulus-response learning. Training is a type of teaching associated with the chaining of stimulus-response type learning into complex performance algorithms. Instruction is a type of teaching associated with concept development, and indoctrination a type of teaching associated with the development of critical reasoning (Green, 1971).

Now consider the four quadrants in the model. In quadrant I, (low risk, low ambiguity), you find memory level type tasks that require only rote level learning such as a student being required to learn some sound to symbol correspondences in a phonics exercise. In quadrant II, (high risk, low ambiguity), you find routine level type tasks such as the one described earlier designed to foster greater automaticity in decoding skills. In quadrant III, (high risk and high ambiguity), you find higher order cognitive level tasks requiring the development and application of new concepts such as the task of composing a persuasive essay. And finally, in quadrant IV, (low risk and high ambiguity), you find tasks that foster appreciation and the development of values. Here, for example, you might consider the task of a teacher reading aloud to students from good literature while encouraging divergent responses from the students.

Applying this framework to the study of teaching and learning in classrooms might involve examining the nature of the tasks presented to students in terms of the risk and ambiguity characteristics. What kinds of tasks does the teacher select? How are these tasks introduced to students? What is the teacher's role in supporting task completion? What kinds of "in flight" decisions does the teacher make to adjust the task during instruction? What meanings do the students construct around this task? What kinds of learning are associated with participation in these tasks?

One of the interesting findings from task research relates to the dynamic interaction between teachers and students during instruction. It has been discovered that students, in general, tend to resist tasks that are high in ambiguity and risk. The introduction of such tasks into a classroom immediately sets into motion a process of negotiation between the teacher and the students. Students will work to reduce the ambiguity and risk features. For example, the teacher introduces the task of writing a persuasive essay. She tells the students that in 2 weeks they will be required to turn in a completed product. That essay will be graded and count for 40% of their term grade. She assures the students that she will teach them during this 2-week period how to write a good essay. It is here that the negotiations begin. For example, the students might ask for specific parameters for the task. How many pages? They might ask the teacher to provide them with a model of an excellent paper. They might ask for a chance to turn in a first draft for feedback that they can revise before the final submission. In each case, the students are attempting to reduce the ambiguity of the task. The teacher may resist these attempts to negotiate for fear of reducing the potential for learning. The teacher understands that to hand out models might lead to mimicking which is a low level memory type learning outcome.

It is truly a negotiated process. The teacher is not simply free to hold the standards as high as she might like without some encountering some risks. The students always have their trump card to play in the negotiations, and that is cooperation. The teaching-learning contract is based on principles of trust and cooperation. Pushed too far, students may become uncooperative and teaching stops and learning stops. The work system disintegrates.

If the teacher has the goal of a smooth running class in the sense of minimum disruptions and "noise" in the system, then several options are open to him. The first is to readily negotiate with students by reducing the ambiguity and risk characteristics of tasks to a rote memory level. The other option is to simply avoid the teaching of difficult content altogether. Here we find the teacher who, for example, skips the unit on electricity because it is too complicated for his students and substitutes instead a unit on the water cycle. Or, the teacher who moves a pupil from one reader down to another because the vocabulary and concept load are too challenging.

The choices are fairly clear. On the one hand, the teacher who wishes to challenge students intellectually, to push the frontiers of learning, must be willing to tolerate some uncertainty in management and order in the classroom. Higher level learning requires action and interaction. Some students may resist initially. The teacher must be skilled in motivating and instructing and not succumb to the pressure to abandon higher level thinking goals. On the other hand, the teacher who is primarily concerned with the conditions of order and cooperation in the classroom may find the easy road is filling the classroom day with tasks low in ambiguity and risk, thus reducing the opportunity to learn—the expectation to learn.

The first example is consistent with a professional myth of teaching—the belief that a good teacher is one who holds incredibly high learning standards and is knowledgeable, skilled, flexible, and creative in helping all children, including the unmotivated and "at-risk" learners, to realize these goals. The second example of the classroom filled with trivial content probably comes closest to what the science of teaching (as revealed through process-product research) has identified as "effective."

Teachers subjected to evaluation derived from the process-product tradition learn one simple lesson from the appraisal process: The easiest way to score well on an appraisal is to teach only content that is at memory level. With the associated low risk and low ambiguity task characteristics, good management is practically assured. Further, this content is both easily molded into seven step formula teaching (i.e., training) and readily measured in terms of learning outcomes.

Although some teachers claim to have "canned" lessons to pull out at a moment's notice for an unscheduled observation and that they return to real teaching after the observation is over, the fact is these kinds of appraisal instruments have created a norm in many states for what effective teaching looks like.

What kind of mythology of teaching is compatible with this scientific view? It is surely one that minimizes teaching to a technical skill—not even a craft—and certainly is not a professional view that emphasizes responsible decision-making.

The research in teaching and accountability movement is just one example of where research findings are being used in a way that intrudes on the lives of teachers and students. Consider a second area: prescriptions for practice derived from the "effective schools" movement.

Paralleling, but distinct from, the development of the research in teaching literature during the decade of the seventies, one finds the growth of the "school effectiveness" literature. Beginning with the work of Weber (1971) and followed along by many others, researchers began to identify schools that were succeeding with students in terms of academic achievement where other factors (e.g., socioeconomic status) would overwhelmingly predict failure. Out of this work, the correlates of effective schools have been identified. Like the effective teaching correlates, there are any number of lists of school level factors that are associated with success. There is wide agreement in this research community on the importance of such factors as clear mission, instructional focus (with an emphasis on basics), the principal as instructional leader, and frequent assessment of student learning (Hoffman & Rutherford, 1984).

There are any number of staff development programs under way in school districts and in states across the country that draw on this research base. Let me examine just a couple of these areas with you to explore the effects on teaching. We begin with the notion of "instructional focus." This is translated operationally to mean that all teachers should be teaching the same thing at the same time. At the campus level we find principals, in their role as instructional leaders, requiring teachers to move through the same required curriculum materials at exactly the same pace. At the state level we find similar efforts. In Texas, for example, the state has attempted to achieve instructional focus by identifying a set of essential elements. These essential elements serve to define, at a minimum, what must be taught by every teacher to every child in every grade level in every major curricular area. The state has implemented an annual minimum skills testing program that is tied directly to the learning areas targeted in the essential elements. All of the state's requests for instructional materials are tied to the essential elements and the associated assessment instruments. The publishers have responded in the designing of their materials, not just for Texas, but for the world at large.

And what are the effects of promoting this conception of instructional focus? We have created a trivial curriculum around easily measured learning outcomes and once again intruded on the teacher's prerogatives and responsibilities related to instructional decision-making—the hallmark of the professional teaching myth.

I have a friend who is a classroom teacher (kindergarten level) who has been immersed for the past 2 years in one version of effective schools training. She related to me a recent inservice activity in which all of the teachers in her school were placed in small groups to consider and discuss solutions to particular problems. On this day, all of the problems related to instructional focus. One of the cases depicted a first-grade teacher working in a school located in a very poor community. Each year this teacher would spend 3 weeks in the spring teaching a poetry unit that she had developed. It was her belief that all children needed to be exposed at an early age to the beautiful language and expression one finds in poetry. She felt it particularly necessary to teach this unit in this setting because the children in her class were not often exposed to rich models of language. One day the principal visited her classroom for an observation and found her teaching this unit. In a follow-up meeting with the teacher that afternoon, he suggested that the teacher's time and the students' time would be better spent on the basics and that she should abandon her work with the unit.

The question for discussion in the group was: What should the teacher do? My friend did an excellent job of convincing her small group that the teacher should stick to the unit and instruct the principal on how the "basics" (and much more) can be taught through poetry. When the groups came back together to share their solutions, my friend's group was the only one recommending that the teacher stick to the unit. The other groups all concluded that the teacher should drop the unit and teach the basics in order to achieve an instructional focus consistent with that of the entire school.

The principal, who was directing the inservice and following the programmed materials for establishing an effective school, affirmed the position of dropping the unit. She cut short the discussion of the merits of the alternatives with the statement: "It's not important whether you believe the effective schools' principles. All that's important is that you do it."

What kind of teaching myth can survive the fury and folly of instructional focus when that is translated to mean sameness? Woe to those who venture out of quadrant I on the model! I fear the lines surrounding quadrant I are quickly becoming the boundaries for schooling.

Although the examples of research intruding on the lives of teachers I have discussed are few in number, their presence is so overpowering that I am amazed when I walk into classrooms and find exciting, creative teaching going on. It is a testimony to the commitment of classroom teachers in Texas that the myth that led them to teach survives the onslaught of educational "reform."

Although the examples I have reflected on are focused on the geographical area that I have continual interaction with, I know the rest of the country is not immune. In preparing for this essay, I wrote to several colleagues across the country soliciting examples from their experience where they found the findings of research being applied in an intrusive way. The return rate on my "not-so-scientific" questionnaire was over 95% and there was no shortage of examples. The labels often differed from one area to another, but their responses suggested to me that the underlying mentality and movements are the same across the country.[2]

Although the examples I have given relate to areas that I have some research experience in, there are other areas of activity that are equally important that I could draw on such as the recent legislation in this state that requires all first-grade students to be assessed for dyslexia and those found to have it to be treated with a "proven" program of remediation.

And finally, although the examples I have reflected on represent, in my estimation, misapplications of research findings by policy makers, there are numerous other examples of intrusions into the lives of teachers in the name of research that have a questionable research base, as in the case of the learning styles movement and the left-brain/right-brain literature.

What responsibilities fall on us as literacy researchers deal with these abuses?

We can ignore the situation altogether—dig our heads in the sand, or worse yet, build walls around universities only venturing out into the real world to gather some data now and again. We can proclaim science as innocent, value free. We can claim that some of our best friends are teachers, forgetting that for every teacher we know there are thousands more who know us and our work only through our interpreters. The problem with the "I'm innocent, I'm a scientist" approach is that the suffering is too severe to be ignored. The abuses are too rooted in the system to go away if we ignore them. The problem is that we are part of the problem and, therefore, must be part of the solution.

We can begin by becoming proactive as individuals in policy and programmatic initiatives to try to make things better. There are those among us, for example, who have become actively involved in trying to improve State Assessment and National Assessment processes. There are those among us who have become directly involved in the development of programs (commercial and noncommercial) that build on current research. There are those who have become active in the whole language movement, a movement sweeping the country because it has a solid basis in theory and because it stresses teacher empowerment, the power of myth. Individuals who make these efforts do so at some risk to their status in the research community. Surely there are philosophical and ethical issues involved here, but I trust we can find resolution to these concerns in a way that does not separate researchers from practitioners but builds bridges. I applaud all of these efforts, even though I might not be comfortable personally with some of the outcomes. I believe the more involved researchers are in the world of practice, the more we will insure that practice and science are in tune with one another. Acting out individually can make a difference, but it is not enough.

We can take steps in our own research to adopt methods or combinations of methods that explore the personal constructs of teachers about teaching, as well as the personal meanings that students construct as part of learning (see Erickson, 1986). The academic work model, described earlier, represents one view of classrooms that is compatible with both interpretive and quantitative research traditions. Through such research we can come closer to capturing teacher intuitions and perhaps begin to understand how teachers grow conceptually and professionally. The findings regarding excellence in teaching that come out of such research efforts will enrich our scientific knowledge. Further, these findings may be less seductive to policy makers looking for quick fixes and, therefore, less vulnerable to the kinds of abuses associated with process-product research.

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[2] I would like to extend my appreciation to the following individuals for sharing with me their insights on such issues: Richard Allington, Donna Alvermann, Kathryn Au, Robert Calfee, Diane DeFord, Jan Dole, Walter Doyle, Gerald Duffy, James Flood, Larry Friedman, Yetta Goodman, Jerome Harste, Elfrieda Hiebert, Peter Johnston, Michael Kamil, P. David Pearson, Virginia Richardson, Robert Ruddell, Patrick Shannon, Steven Stahl, and Paul Wilson.

Adapting our research methods is something that can help in the long run, but this is not a sufficient response in that it does little to address the current problems we face.

We can speak out as individuals against the abuses surrounding us. Jere Brophy (1988), one of the leaders in the process-product tradition, writes:

> Research on teaching and research on teacher effects in particular, has a great deal to offer by contributing to the development of a knowledge base to inform professional practice. However, it is a misuse of such research to use it as a basis for developing simple-minded and rigid guidelines of the "behavior X correlates with the student achievement gain, so teachers should always use behavior X variety." (p. 20)

Surely, we must speak out as individuals. But it is not always clear that a single voice, however renowned, will be heard above the noise of a stampede. Speaking out as an individual is not enough.

We can assume a voice as a total research community and in unison "just say no" to the absurdities that surround us. This is, in fact, what I believe we must do if we are to break out of the horrible cycle we have become locked into.

Where might we find such a collective "voice"?

I do not believe that the NRC is the appropriate platform. The NRC has a singular focus and that has been and should continue to be as a forum for sharing original research. The NRC is dedicated to the advancement of a science of literacy through research. It is the goal of science that binds us together. This is not to say that we always agree with one another. Anyone who has spent time at NRC in sessions or eavesdropping in "vital issues", recognizes the tremendous diversity in our membership. Our diversity is rooted in the fact that we do not always share the same mythology. And that is as it should be. It is perhaps the differences in our mythology that make us interesting, amusing, challenging, motivating, and even aggravating to one another. Occasionally we fall victim to the temptation of trying to use research to prove our particular mythology to be better than someone else's. But we recognize this cannnot ever be done and come back together year after year to share research. I would not want to threaten this focus or this diversity by asking the NRC to assume a new role.

I do believe, though, that it is perfectly appropriate for the NRC to assume a leadership role in encouraging action by the literacy research community. I am asking that the NRC consider sponsoring a meeting of the leadership of such organizations as the National Council of Research in English, The American Educational Research

Association, The National Council of Teachers of English, and the International Reading Association. The purpose of such a meeting would be to explore possible ways in which we, as a profession, might be able to monitor the application, misapplication, and ignorance of literacy research in policy and commercial initiative.[3]

It has been observed that for every complex problem there is a simple solution—and it is usually wrong. What I am proposing is neither simple nor is it the solution to all of the problems facing teaching today. It is simply a starting point. I believe such an effort can make a difference in the long run. The people fostering the kinds of abuses I have cited are well-intentioned individuals, but typically misinformed or uninformed, not just about research findings but about what research is and what can be expected from it. We can challenge the popular perception that good teaching can be mandated through policy initiatives whether those initiatives come from the central office in a local school, the central office in a district, or the state agency for education. We can, perhaps, begin to turn the tide toward a return to a trusting, empowering view of individual teachers. I am not, by the way, waxing nostalgic for the good old days of the 1950s. Myth without science is ignorance. We must continue to work to create a science of literacy learning and teaching, but that science in the hands of teachers must live with and take life from myth. A single science, perhaps, but not a single myth. The diversity that makes us interesting to one another as researchers is the stuff of which exciting teaching and schools are made.

Several years ago I attended a reception honoring 10 outstanding classroom teachers. Each teacher was given a few minutes to describe what brought them to and sustained them in teaching. One after another they related moving testimony to their personal commitments to help, to serve, to enrich the lives of children. The final honoree began by saying that she felt a bit guilty listening to all of the other winners. She confessed selfishness as her prime motivator. She described herself as addicted to learning and that teaching was the only place she could find to satisfy her habit. That 'confession' and the comments of the other teachers reminded me of the power of myth in professional life. It reminded me, too, of the words of Joseph Campbell (1988) when he wrote:

> People say that we're all seeking meaning in life. I don't think that's what we're really seeking. I think what we're seeking is the experience of being alive, so alive that our life experiences on the purely physical plane will have resonances with our own innermost being and reality, so that we actually feel the rapture of being alive. That's what it's all about, and myths are the clues to the spiritual potentialities of the human life. (p. 5)

Can we create a science of teaching literacy that supports the experiencing of a personal mythology in teaching? Can we bring about a renaissance of the art of teaching which is nothing more or less than the creative unleashing and expression of a personal mythology? Can we demonstrate to teachers that science is their ally and not their enemy? Can we be as tolerant in our acceptance, indeed encouragement, of multiple myths of teaching as we are in learning to accept and encourage multiple myths of research? I believe we can and we must do all of these. It is our professional obligation.

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[3] On December 3, 1990, the NRC Board of Directors approved a motion to sponsor such a meeting.

In the end, it may not be turtles all the way down, but as Gerry Duffy (1982) once noted, it may seem at times to teachers that their feet are surrounded by alligators. At such times myth is not a luxury but a necessity to persevere and perhaps even excel.

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READING-WRITING CONNECTIONS: THE RELATIONS AMONG THREE PERSPECTIVES

Timothy Shanahan
University of Illinois at Chicago

Robert J. Tierney
Ohio State University

Over the past decade there have been a number of theoretical analyses and published summaries of reading-writing relations (Aulls, 1985; Auten, 1983; Belanger, 1987; Crismore, 1982; Hamill & McNutt, 1980; Kucer, 1985; Lehr, 1981; A. Rubin & Hansen, 1984; Shanahan, 1980, 1988; Shanklin, 1982; Stotsky, 1982, 1983; Tierney & Leys, 1984; Tierney & Pearson, 1983; Wilson, 1981). The published summaries that exist, however, have usually treated reading-writing relationship studies as if they came from a single theoretical perspective. Recently we completed an additional review that is to be published in the *Handbook of Reading Research*. That as-yet-unpublished review considers studies conducted from all three major perspectives that are now used to examine the connections between reading and writing. This paper will attempt to build upon and extend that chapter.

Here we will review some of the theoretical and empirical work that has been conducted from each of these perspectives, particularly some of the more recent efforts, and we will attempt to analyze some of the underlying assumptions supporting the work in each area. Our purpose in this is to attempt to discover whether the separate assumptions are due to simple inattention to the other perspectives or whether they result from serious disagreements about the nature and meaning of literacy. If it is the former, that is if the differences are more sociological or historical, then a rapprochement of the various traditions would seem to be in order, and such a coming together of theories might serve to extend the power of reading-writing relationship views.

This analysis will be limited for the most part to work completed since 1980. Most studies conducted before this were single nonprogrammatic efforts. Such studies rarely were based on theoretical positions that went much beyond the variables being examined or the manipulations being made. Since 1980, reliance on theory has become more extensive, research has become increasingly programmatic, numbers of variables considered have increased, as has the complexity and sophistication of the measurement and data analytic techniques.

SHARED KNOWLEDGE-SHARED PROCESS

Studies from the first perspective, shared knowledge-shared process, attempt to identify communalities that exist in reading and writing, and how we might enhance reading and writing achievement simultaneously by taking advantage of these communalities. These studies proceed from a belief that reading and writing employ a common knowledge base, and that within reading and writing similar mental operations are used to process the information.

The theoretical perspectives underlying the shared knowledge-shared process studies are reading theory, cognitive psychology, and linguistics. The largest percentage of these studies have been conducted by those whose primary academic commitment is to reading education or reading psychology. Although these studies have focused on children as young as 3 years old (Galda, Pellegrini, & Cox, 1989) through adults (Sheen & Heerman, 1985) most of the studies have focused on elementary school children or older persons with limited reading abilities.

Knowledge Relations

What kinds of connections between reading and writing have been identified? Analyses of children's compositions and test performances in reading have revealed significant positive correlations in the area of vocabulary (Maloney, 1968; Shanahan, 1984; Vairo, 1976); syntax (Evans, 1979; Evanechko, Ollila, & Armstrong, 1974; Heil, 1976; O'Hare, 1973; Shanahan, 1984) narrative and expository text organization (Braun & Gordon, 1984; Cox, Shanahan, & Tinzman, in press; Gordon & Braun, 1982; Hiebert, Englert & Brennan, 1983; Shanahan, 1984; Stein, 1978); spelling and word recognition ability (Hammill & McNutt, 1980; Juel, Griffith, & Gough, 1986; Morris & Perney, 1984; Shanahan, 1984); phonemic awareness (Ferroli & Shanahan, 1987; Juel, Griffith, & Gough, 1986); writing mechanics including capitalization, punctuation, and correct grammar usage and reading achievement (Hammill & McNutt, 1980); spelling accuracy and reading fluency (Zutell & Rasinski, 1985); use of cohesion and reading achievement (Cox, Shanahan, & Sulzby, 1990; Cox, Shanahan, & Tinzman, in press); appropriateness of voice in composition and reading achievement (Beach, 1984; Cox, Shanahan, & Tinzman, in press); motivation (Bruning, Shell, & Colvin-Murphy, 1987); development of main idea in the writing of narratives and reading achievement (Beach, 1984); patterns of response to literature (Simon, 1980); development of background setting in narration and reading achievement (Beach, 1984); creativity in writing and reading comprehension (Fishco, 1966); reading comprehension and writing productivity or fluency (Bippus, 1977); and sense of genre (Langer, 1985).

A common property of these studies is that they are based on static measurements of the characteristics of texts that children have written and outcomes of product measures of reading ability. Many of these measures come from a skills-based instructional tradition (i.e., spelling, syntax), whereas others are drawn from theories of linguistics (i.e., cohesive harmony, story grammar components), or motivation (i.e., attributions).

Process Relations

One particularly important innovation of the 1980s has been the attempt to measure reading-writing relations through the analysis of reasoning, problem solving, and information processing strategies and activities. Think alouds, pause analyses, or retrospective accounts (Birnbaum, 1982; Langer, 1986; Martin, 1986, 1987; Ryan, 1983) have been used to determine the processing patterns in reading and writing. These studies have identified relations across reading and writing between entities such as idea generation, metacognition, structuring, evaluating, revising, monitoring, questioning, and hypothesizing. Up to now, such studies have focused on rather small groups of students, with little effort to use common nomenclature or to identify processing similarities across the studies. Nevertheless, they have generally found moderate levels of relationship across reading and writing, and from this it appears that readers and writers approach their tasks in similar, or at least in parallel, ways.

Generally, in all of these knowledge-process studies, the correlations between reading and writing have been rather small, and usually of no more than moderate levels, say about .60 (Belanger, 1987; Shanahan, 1984). In other words, it has rarely been found that specific reading and writing measures explain more than 30–40% of the variance in each other. These figures might be improved, of course, through the use of more reliable measures, or the construction of more specific reading measures (as has usually been the case with the writing measures); the usual outcome of interest has all too often been a global, standardized reading comprehension test. However, such improvements would likely have a limited impact on the size of these correlations as evidenced by the results when tests have been reliable (Shanahan, 1984), and when more specific measures are evident (Langer, 1986). Even attempts to measure several of these relations simultaneously (Langer, 1986; Shanahan & Lomax, 1986, 1988) have only resulted in increasing the median amount of variance explanation by a modest 10–15%; still a moderate level. One might extrapolate from the magnitude of these correlations that reading and writing represent somewhat overlapping modes of learning, but that they are not sufficiently overlapping for one to suffice for the other. In other words, it is doubtful that reading activities alone would be sufficient to lead to learning to write, or that writing activities alone would be sufficient for developing reading ability (at least with regard to the types of instruction suggested by the aforementioned measures). Similarly dubious would be attempts to teach some underlying component of literacy knowledge or process without opportunities to use and develop this component in both reading and writing.

The possibilities and difficulties of using reading to influence writing ability, and writing to influence reading ability, is borne out in the experimental studies. It has been found that reading activity and instruction can influence or enhance writing ability (Eckhoff, 1983; Felland, 1980; McConnell, 1983), and that writing instruction can enhance reading ability (Bereiter & Scardamalia, 1984; Educational Testing Service, 1984; Kelley, 1984; Straw & Schreiner, 1982). However, the transfer between reading and writing occurs with varying degrees of success (Belanger & Martin, 1984; Campbell, 1976; Crowhurst, 1987; Ferris & Snyder, 1986; Michener, 1985; Nielsen, 1980; Raphael, Englert, & Kirschner, 1986). (Also, see earlier reviews by Shanahan [1986] and Stotsky [1983].) We estimate that significant cross-literacy transfer occurs in only about 30% of the experimental studies; a figure possibly inflated by the tendency of journals to include only positive results. However, we do not want to deny that in rich contexts where reading-writing connections are ongoing and extensive (unlike the contexts described in most of the experimental studies) transfer might be more likely. It is also possible that these experimental programs have a differential impact on students.

From shared knowledge-shared process studies, it seems apparent that reading and writing have only partial communality. Two alternative explanations for the limited intercorrelation of reading and writing have been put forward. Langer (1986) has suggested that reading and writing are so functionally different that it would be impossible to measure reading and writing in an entirely comparable manner, whereas Shanahan and Lomax (1988) have argued that a closer relationship might be evident in an instructional context that encouraged children to unite reading and writing, and to be aware of this union. There is some provocative evidence that would suggest that readers and writers are more likely to make such connections when the classroom literacy environment provides an abundance of reading and writing activities (Stansell & Moss, 1984).

The relations of reading and writing are not simple. Some children appear to be able to use particular aspects of knowledge or process well in reading while not being able to do so in writing; others evidence an opposite pattern. A number of studies have identified children who were good readers but poor writers, or poor readers while being good writers (Belanger, 1987; Loban, 1963; Martin, 1976; Tierney, 1983). As many as one out of five children appear to fit into these unexpected categories (Belanger, 1987). Thus, for 80% of children these correlations might suggest provocative instructional possibilities, whereas for these others there might be factors that are associated with the extent to which reading and writing are interrelated. With few exceptions, the studies of reading and writing relations from a knowledge/process sharing perspective have disregarded children's instructional histories; thus, most of these studies provide us with a picture of the relationships under unspecified instructional and social influences, and we cannot know whether instruction specifically, or the literacy environment in general, can be shaped to influence the magnitude or nature of the relations or whether they can alter the size of these poor/good cohorts for whom the correlations would be minimal or negative. Nor have such students been trailed longitudinally to identify whether these patterns change over time with maturation or learning.

Basic Assumptions of the Perspective

Perhaps the correlations between reading and writing are even further confounded. For example, one particularly vexing issue with regard to reading-writing relations concerns the role of a general ability or intelligence factor in the correlations. A common reliance of reading and writing upon intelligence could be sufficient to explain the amounts of relationship that have been reported. In other words, the reading-writing relationship would not be a functional entity that could be taken advantage of instructionally, but would be instead a simple artifact due to an underdeveloped theoretical model. This is a difficult criticism to refute as most studies have not partialled out intelligence or general ability. One exception is a study by Galda, Pellegrini, and Cox (1989) which partialled out the entire relationship with an IQ measure. However, the only measure of high reliability in this study was the IQ test, and thus, the result might be an artifact.

The counter arguments to this indicate that the patterns of relationship between literacy and intelligence or general ability are not consistent; they typically have been found to be limited in the early levels of literacy development and to increase as literacy development advances (Singer, 1978). Conversely, studies of the reading-writing relationship have shown levels of relationship to be relatively stable across reading levels (Shanahan, 1984; Langer, 1986). This stability would not be expected if the relationship was entirely due to general abilities or intelligence. And, if the relationship was just an artifact of general ability, intelligence or some similar factor, then we would not expect instruction in reading to have an impact upon writing, or vice-versa, since general abilities are hypothesized to be relatively impervious to instructional interventions. As has been indicated, studies of the influence of reading instruction upon writing and writing instruction upon reading have often had significant positive results. Finally, analyses of the relationship with reading, writing and intelligence indicate that reading and writing load on different factors (verbal comprehension and verbal fluency, respectively) of IQ (Sincoff & Sternberg, 1987), though this might be due more to how reading and writing are measured than to the nature of reading and writing ability.

The shared knowledge-shared process studies to a great extent proceed on the basis of idealistic or absolute views of reading and writing. We term these as idealistic in the sense that they define reading and writing proficiency in absolute terms, separate from any notions of social, communicative, or functional effectiveness (this is the view that has traditionally dominated school curricula). According to such views, good writing is lexically rich, has complex sentences, uses hierarchical or story grammar organizations, is mechanically standard, and uses cohesive links. Good reading results in exact pronunciation, speedy word recognition, and high amounts of recall from simple texts. Although it seems probable that these variables have been selected because of their implication in some, usually unmentioned, aspect of functional effectiveness, because the tasks are generally separated from real uses of reading and writing, the measures have become ends in themselves.

Similar problems are inherent in the process studies, although here the ideal view shifts to the actions of the reader-writer and away from the text properties. Whereas those studies which have focused on products have been devoid of considerations of function and process, the process studies have tended to disregard products. In other words, there is a tendency for good readers and writers to be viewed as those who take a global approach to text, and who are planful and self-aware of their own performances, no matter what the outcome of these actions.

The impact of such restricted views of reading and writing is quite pervasive. Growth, in accordance with these views, tends to become largely a linear issue of simply learning to do more of a particular activity or to perform an activity with greater fluency. For instance, it would generally be assumed with a shared knowledge view that readers and writers become more proficient with word recognition and spelling as they get older, or that they could read or write more complex texts with practice. Some studies have complicated this view, though only slightly, by showing that there are discontinuities in the nature of the reading-writing relationship with development (Birnbaum, 1982; Shanahan, 1984). That is, although the magnitude of reading-writing relations seems relatively constant across grade levels, the specific aspects of reading and writing that are interconnected seemingly changes with maturation. In accordance with this view and befitting the measures employed, for younger children, the relationship is largely due to word recognition-word production factors, whereas with more mature readers issues like vocabulary, ideation, and text organization become more important. This suggests, therefore, that development may still be linear, but linear within a hierarchical organization.

The problem which arises from such a view is that development is not separable from learning and curriculum. Development results from learning, and the reason for the identifiable discontinuities may have more to do with the complexity of what is learned in reading and writing than with the individual's cognitive or linguistic abilities. Of course, if as a result of these definitions and approaches development emerges as being tied so closely to what is taught, then it is not surprising that the role of instruction, particularly direct instruction, is often seen as a critical feature within these models (Stotsky, 1983). According to these views, development is controlled by learning, but learning is controlled to a great extent by instruction. (Examine Table 1 for a graphic comparison of these assumptions with those underlying the communications and collaborative approaches.)

COMMUNICATIONS STUDIES

A second perspective for examining reading-writing relations is communications. Studies from a communications perspective analyze how writers anticipate the needs

Table 1

Assumptions Inherent in Three Perspectives on Reading-Writing Relations

	Shared Knowledge-Shared Process	Communications	Collaboration
Competency	Idealistic, Absolute	Social, Conditional	Conditional (Accepts ideal or social)
Development	Discontinuities of Information	Biological-cognitive	Steady State (Possibly biological)
Learning	Instructional-experiential	Instructional-maturational-experiential	Instructional-experiential
Separability	Yes	No	Yes
Context Role	None	Social	Social & Functional

of potential readers, and how readers use their thinking about authors to enhance their reading comprehension. These studies emphasize communications by treating the reading-writing relationship as a negotiation between readers and writers. Rhetorical concerns have long been an issue in composition theory and research (Bakhtin, 1973; Moffett, 1968; Nystrand, 1979) and at various times the role of author's intentions has been a consideration in reading and reader-response theories as well (Richards, 1929; Rosenblatt, 1978). The conduct of this latter work has largely been limited by the fact that reading theorists have generally taken cognitive problem-solving approaches instead of social ones, and literary theorists have been enthralled, for most of the past 50 years, by the so-called "New Criticism," with its rejection of author intentions as a pertinent construct and with some of the newer deconstructionist approaches.

Current thinking about the nature of reader-author negotiations represents an amalgamation emanating from pragmatics, schema theoretic notions of reading and writing, reader response theory, and a resurgence of interest in social aspects of literacy. In other words, current communications studies rely on theoretical underpinnings drawn from various sources including rhetoric, reader-response theory, communications, speech act theory, literary theory, sociolinguistics, composition theory and social cognition.

It should be noted that not all theorists support the idea that thinking of authors and audiences are useful constructs. Elbow (1987) has suggested that writers should ignore audience, as he cautions that too much thinking about audience, particularly during writing, will serve to cognitively overload a writer, diminishing writing quality. Stanley Fish (1980) goes so far as to claim that a text can mean anything that an interpretive community wants it to with no regard for author intentions.

Social theories of literacy do not permit such unbridled, and seemingly endless excursions away from a text, as they recognize the rights of authors as well as readers. It has been claimed, for example, that during reading and writing a social contract exists between readers and writers (Tierney & LaZansky, 1980). Interpretation does occur, and should occur, but the reader has a responsibility to conduct this interpretation in some accord with their beliefs about author's intent. There must be a good faith effort by both readers and writers to communicate, and meaning-making must take place within these parameters.

Writers Thinking About Readers

D. Rubin (1981) found a small but significant connection between the ability to consider the needs of others and writing quality. Kroll (1978), proceeding from a Piagetian framework, found that younger children were unable to consider audience needs in writing, whereas they could do so in oral language. Older children could recognize the types of information that an audience would need in both writing and speaking. He concluded that children were able to decenter during oral explanations because of the dialogic nature of the communication, while they were more egocentric in the situation that on the surface appeared to be monologic rather than dialogic. In a later analysis of the persuasive writings of 9-year-olds, Kroll (1984) found that students did make a serious, if not always effective, effort to meet the needs of their audiences. "Few of the letters manifested either gross egocentrism or a blatant disregard for the reader's needs," (Kroll, 1984, p. 425).

More persuasively, perhaps, studies have demonstrated that writers often do attempt to show sensitivity to the needs of their audiences by making adaptations in their writing. Typically such studies have manipulated writing conditions by indicating that students should write a composition multiple times for alternative audiences, usually varying the audiences by age (Beach & Anson, 1988, Plasse, 1982; Prentice, 1980; D. Rubin, 1981; Strange, 1986) or intimacy (Crowhurst & Piche, 1979; Fontaine, 1984; Richardson, 1980; Rubin & Piche, 1979). Such studies have shown that students alter vocabulary choices, use of slang, complexity of syntax, amount of words, amount of deference, how they establish relationship, cohesion and types and amounts of information included in their compositions as a result of the audience variations. Such adaptations do not appear in the research findings consistently, however (Plasse, 1982; Prentice, 1980; Smith & Swan, 1978).

More important than the inconsistency of results is that these efforts can be criticized for artificially increasing the possibility of finding audience-related variations, as by their design they encourage students to make such adjustments. (When is the last time that you wrote a message for two or more different pretend audiences that really weren't going to read the compositions anyway?) Generally, these studies find that older students are able to vary their writing to a greater extent than could younger students (usually 9–12 years old). Thus, Fontaine's (1984) conclusion, that "nine-year olds seemed to be trapped, having neither a real nor a representational image of the audience, but only an ill-defined sense of the 'other' " (p. 20). It has been demonstrated that the most effective writers tend to think about audience more during revision, during the reading portion of the writing process, than during planning or composition (Raforth, 1989).

Most studies of audience awareness have neglected the long term effects of audience awareness training and focused just on the material at hand. A notable exception to this was a brief experiment conducted by Greenlee, Hiebert, Bridge, and Winograd (1986) that showed the influence of instruction on adaptation for audience. This study examined the effects of writing letters for real audiences versus writing letters as a classroom exercise. It reported that the genuine-audience instructional condition led to improvements in grammatical sophistication, handwriting quality, and length of letters. Students were found to increase the range of discourse functions that they used in their writings too. What characterized these writings as being genuine is that they were actually read and responded to by an audience beyond the classroom. Similarly, the writing process-conference approach widely popularized by Donald Graves and his colleagues has been found to be effective in improving children's writing (Hillocks, 1986), including their view of themselves as authors having certain concerns for their audience (Tierney & Rogers, 1989). The hallmark of this rather complex instructional intervention is the social interaction of student authors and pe audiences.

More formal attempts to teach students to anticipate reader needs have been effective as well. Schriver (1986) used "readers' protocols," that is, readers' responses to existing texts, to sensitize her students to readers' needs and problems. The protocols demonstrate the types of problems that readers have with texts. The analysis of these protocols has been found to have a significant impact on college students' abilities to predict potential readers' comprehension problems with their own writings.

A very different approach has students analyzing the needs of a specific audience (Black, 1989). This study is notable because it asked volunteers to write a persuasive essay for a genuine audience that they were interested in influencing (in this case a student government council). Students were first asked to analyze the audience, write an essay, and provide some kind of self-analysis of the persuasiveness of their essay. On the basis of their audience awareness students were then grouped, and half of them were taught how to analyze their audience (through a series of questions about audience knowledge, values, attitudes, and goals), and rewrote their persuasive pieces. The others simply reworked their pieces without the audience awareness questions. It was found that the intervention increased the persuasiveness of the final papers, as judged, not in ideal terms, but by the genuine audience that had been intended by the writers. No differences in the final performances were due to the initial differences in audience awareness that were found to exist. At least for persuasive writing with specific audiences, the use of an audience analysis questionnaire appears to be a potentially effective way of improving writing.

Readers Thinking About Writers

There is much less evidence available that would indicate that readers think about authors, though the little bit that does exist would suggest that they do think about authors, at least when they are having trouble understanding a text. Think alouds during reading with high school and adult level readers have indicated that when they are having difficulty understanding a text they tend to make comments regarding author's intentions (Flower, 1987; S. Martin, 1987). In fact, Flower (1987) found that approximately 60% of the difficulties incurred by mature readers were resolved by resorting to a consideration of authorship. Tierney, LaZansky, Raphael, and Cohen (1987) reported similar findings when fourth graders encountered and dealt with inconsistent information inserted in text. Such statements are substantially less common during the reading of relatively easier materials.

Descriptive analyses of the reading development of children in environments that stress authorship and the social connections of literacy, through peer conferencing and other similar activities, have suggested that children adopt a more transactional stance with regard to text (Short, 1986) and that, as a result, children increase their ability to interpret texts in effective ways (Rowe, 1989). Studies of the influence of metadiscourse in text (Beauvais, 1989)—that is, discourse that an author places in text to make sure that the reader is aware of author perception and intention—has been found to improve reading performance under some conditions. Finally, studies of the incidence of authorship activities, particularly discussions of author's intentions during peer conferencing and discussions of authors during the reading of basals and children's literature selections, have been correlated significantly to differences in children's ability to recognize errors and discrepancies in text (Shanahan, 1989) and to students' sense of themselves as readers and their views of text (Tierney & Rogers, 1989).

Again, there is very little evidence that inducing students to think about authors will enhance their reading performance, but what is available is in agreement with this general proposition. However, studies of author awareness have been rather vague with regard to the theoretical dimensions of this construct. Issues such as the role of reader's purposes, interactions or discrepancies in reader's and author's intentions, the relative role of it as an interpretive versus a motivational issue, and the value of author awareness for different types of texts have not been addressed by any of the studies.

Basic Assumptions of the Perspective

The definition of competency in reading and writing is quite different from that evident in the shared knowledge-process perspective. The communications perspective maintains a view of competency that is more conditional. It is not an absolute set of standards, but is instead dependent on readers' and writers' goals, intentions, and circumstances. According to communications views of reading and writing, literacy use is goal-directed. Writers set out to entertain, inform, persuade or empathize with their readers, whereas readers attempt to enjoy and learn from their transactions with text. The true measure of success in such social endeavors is whether the communication took place effectively with regard to the goals of the participants. There can be no ideal text, only text that is effective under some set of social circumstances or conditions. (This social dimension being discussed here is not a ''context,'' per se; it is not simply background. Though ''social context'' for learning certainly exists, here we are discussing the social dimension of literacy; an integral part of literacy itself.)

Unfortunately, on the basis of the empirical procedures adopted in many of these studies, it would be simple to conclude that, according to communications views of literacy, good readers and writers are more adaptive of their texts no matter what the communicative outcomes. These studies, for the most part, have shown that students can think about authors and audiences and make adaptations in texts on the basis of categorical information about pretend readers and writers. They have not shown, with one exception, that these adaptations actually make texts more communicative, and in some cases have gone so far as staying with absolute judgments of quality (such as using holistic ratings rather than primary trait ones). The choices of measures have generally been based on ideal views of what is communicative rather than on communications, and in this regard these studies are not very different from those labeled as shared knowledge-shared process.

And what is the nature of development within the communications approach? To a greater extent than was evident in the shared knowledge-process approach, biological development, as opposed to learning, is a major issue. Theoretical constructs of Piaget, Kelly, and Werner have been used in this regard. Kroll (1978), for example, has attempted to tie writing development to Piagetian stage theories of egocentrism and decentration, whereas others, such as Piche and Roen (1978), have drawn views of literacy development from Kelly's personal construct theory and Werner's comparative-organismic theory. Within these theories, development is both quantitative (more features of audiences can be considered) as well as qualitative (the complexity and abstractness of the features change with experience).

Social development in reading and writing is characterized by categorical changes in the types of information used, the subtlety of this information, and the ability to use this information differentially on the basis of a variety of potential psychological states. Because of these developmental assumptions, studies in this area usually have considered age or maturation differences in subjects, while neglecting reading and writing knowledge. The relative contributions of instruction, experience, and maturation to communication development is still an open question.

In any event the reliance on social psychological theories has led to the adoption of a very different view of the role of instruction in literacy development. To a much greater extent than was true of the shared knowledge-process studies, these studies seem to emphasize the importance of genuine practice (the value of practice *as a source of experience* rather than as a simple repetition of something already learned). In this perspective, the major part of learning appears to be situated in the actual social interactions that take place through literacy. Practice is not isolated from context nor is it rote in nature, as flexibility and resourcefulness rather than habitual response are what is pursued. According to this view, practice is not just useful, it is essential; and the authenticity of this practice is a critical dimension of its potential influence on learning to read and write.

A major assumption of shared knowledge-process studies was that reading and writing could be learned from each other, or that both could be positively improved by instructional emphasis on their joint components. Similar claims are evident in the work on reader-writer communications. It has been suggested that learning to think about authors during reading will have an impact on writing ability, or that thinking about audiences during writing will make one a better reader. Unfortunately, to date, we have more affidavits than studies addressing this suggestion. There is a dearth of studies showing that learning to think in a communicative manner from one side of the text would influence in any way the social thinking on the other side of it.

Perhaps the reason such avenues of study have been neglected in communications approaches while being emphasized in shared knowledge-process ones has to do with their basic views of the separability of reading and writing. According to communications views, the writer always works in anticipation of the reader, and the reader must consider the writer's message in terms of the communicative context as well. Reading and writing in this sense are not separable.

COLLABORATIVE USES OF READING AND WRITING

The final set of reading-writing studies are examinations of the collaborative or joint *uses* of reading and writing. That is, these studies consider the impact of using reading and writing together to accomplish various tasks. These studies have a variety of origins. One idea behind such studies is that reading and writing *activities* entail various types of thinking or reasoning, and if these activities were combined effectively, tasks could be completed better than would be possible if only reading or writing were used, or if they were used separately. Another basis for these studies is tied to the fact that in the "real world" reading and writing are used interactively rather than separately. If we want to maximize the benefits of their use, then we should explore their combined potential.

There are several collaborative studies that have considered school or academic tasks such as learning from text, critical analysis of text, discourse synthesis papers, composition revision, composing with computers, and writing across the curriculum. In addition, a number of studies have analyzed the combination of reading and writing in the workplace or towards the accomplishment of a number of other social goals. Sticht (1980), for example, found that military personnel in the workplace rarely just read, but instead used reading together with other activities including writing. And Blake and Snyder (1988) found reading comprehension to be a prerequisite to successful workplace writing.

Collaborative studies gain much of their impetus from theories drawn from cognitive psychology, and the research in this area tends to be done by psychologists and educators with backgrounds in either reading or writing. There are two major areas of study in this perspective: those that look at learning and those that consider discourse synthesis. The learning studies have been rather prescriptive in nature, that is, they usually induce students to use reading or writing in a particular manner, whereas the discourse synthesis efforts have been more descriptive. McGinley and Tierney (1989) have challenged the prescriptive approaches as being too constricted to reveal the true power of reading-writing combinations. As they stated, ". . . if we wish to understand more fully the roles that reading and writing play in learning and thinking critically, we must continue to explore students' dynamic use of a fluid set of recursive reading and writing engagements as opposed to examining a rather static set of prescribed reading and writing juxtapositions" (p. 263). However, it is an understandable approach to take since reading and writing do not have to be used together for learning from text; it is possible to learn from reading alone or from reading combined with other processes. Text synthesis studies have been more observational and descriptive, probably because text synthesis by definition *requires* a combination of reading and writing, although it doesn't necessarily require a particular type of combination. Most of these studies have tended to have a very practical orientation, by the nature of the tasks that have been examined.

Reading and Writing for Learning

A popular recent approach to the use of reading-writing to learn from text has been the matching of reading with various types of writing tasks (note taking, written responses to factual questions, personal responses, formal analyses of texts, and so on). Studies by Colvin-Murphy (1986), Marshall (1987), Newell (1984, 1989) and Newell, Suszynski, and Weingart (1989) have found that the more extensive responses have led to more learning (possibly due to more thinking time) and to a greater amount of sensitivity to author's craft or to closer integration of prior knowledge of text content. On the basis of think alouds of students doing some of these types of writing, it was found that the more extensive responses led to more concern with structure and relationships, whereas the less involving forms of writing led to the least concern with these. Langer and Applebee (1987) concluded that general classes of writing assignments are likely to lead to very specific thought processes, and consequently to different amounts and types of learning.

However, the combination of tasks is probably not this simple. Konopak and

Konopak (1989) in a similar comparison of note taking, study questions, and essay writing found that in eighth graders (subjects younger, and presumably less literacy proficient, than those used in the other studies) there were no learning differences. Penrose (1989) even found that, on some measures of comprehension, writing tasks actually led to lower scores than other types of study tasks, probably because students did the writing differently than the teachers had intended; there was no automatic cognitive outcome. Despite having the same assignments, their interpretations of the tasks had led them to adopt different goals, and these goals led them to carry out the reading-writing tasks in different ways and consequently to gain different amounts and types of learning.

Tierney, Soter, O'Flahavan, and McGinley (1989), found that the combination of reading and writing, under certain conditions, contributed to increases in understanding and led students to alter their positions on controversial issues, probably because the combinations of reading and writing contributed to dialectical or critical thinking about the issue being examined more than was evident when reading or writing were used alone.

These results did not occur under all conditions or for all combinations. They concluded, "Data from the present study suggest that thought processes change over time, and that to assess the reasoning operations engaged during different tasks, researchers must consider time and other contextual features and view the processes more dynamically" (Tierney, Soter, O'Flahavan, & McGinley, 1989, p. 168). In other words, simply assigning an essay to be written after reading will not necessarily lead students to learn. This effect is likely to be mediated by a number of variables including prior knowledge, attitude, purpose, literate ability, ability to return to a text—to reread or revise at various times in the process, availability of discussion or other sources of information, and contextual variables that have been strangely absent from most collaborative studies of learning from text. While Langer and Applebee (1987) attempted to predict the thought processes enabled by specific writing activities, Tierney and his colleagues took a much less prescriptive orientation and argued that it may be problematic to ascribe to any specific kind of writing a certain set of thinking operations or outcomes. The nature of thinking likely to occur with a particular type of writing, such as note taking, is apt to shift over time and circumstances. The learning outcomes and thinking operations ascribed to types of writing will vary with the writer's engagement. Tierney and his colleagues proceed from the notion that a domain can be "criss-crossed" in a variety of ways and from a variety of perspectives so that a greater amount of knowledge flexibility can be derived. Reading and writing, rereading and rewriting, and moving back and forth between reading and writing are just some of the ways that they speculate this criss-crossing can take place. They do not propose that certain types of reading and writing will necessarily result in a predetermined set of learning outcomes.

Discourse Synthesis

Discourse synthesis or "reading-to-write" studies have usually approached these issues with more concern for individual differences (Spivey, 1984). In this type of study, students are usually provided with two or more texts on a particular topic that contain overlapping and nonoverlapping information, and sometimes even discrepant information about the topic. Students are then asked to write a report using these source materials. These studies have generally found that better readers wrote better syntheses, in part because of their ability to select out more information with cross-textual importance (Spivey, 1984), that better readers were able to develop more complex writing plans probably because of a greater sensitivity to the structural properties of texts that had been read (Spivey & King, 1989), that students with more extensive prior knowledge were able to elaborate on the synthesized material in more specific and evaluative ways (Ackerman, 1989). As with the learning studies, how one approaches a task has an impact on the outcomes. It has been found that students select a variety of ways of combining reading and writing on the basis of goals, prior academic experiences, interpretations of teacher-given directions, and their own estimation of the actual value of the effort.

Synthesis tasks appear to have two typical purposes when used in schools: to create a written object and learning or knowledge transformation. Studies indicate that the creation of an effective written object through discourse synthesis will be mediated to a great extent by factors such as who the potential audience is, the amount of knowledge the learner has, how the text will be used, and the nature of the task and text. (Newell, & Winograd, 1989; Penrose, 1989). If students simply tabulate information or organize it superficially, knowledge transformation will not necessarily occur (Kantz, 1987).

Such studies do not result in neat prescriptions for how reading and writing should be put together. However, they do arrive at a number of suggestions about the clarification of goals and the exploration of alternatives with readers and writers. In Penrose's (1989) words, "When we choose to assign writing as a learning activity, we need to let our students know not just the kind of writing we want them to do but the kind of learning we want them to engage in" (p. 16).

Basic Assumptions of the Perspective

With the shared process-product and communications perspectives, it was relatively easy to discern assumptions. We are somewhat less certain with the collaborative studies. These studies are very specific to particular literacy routines, contexts, and goals, and the researchers who are studying a particular type of collaboration might not be attending to the decisions made by those studying a different type of collaboration.

The competency assumption in these types of studies is most basically that good readers and writers are able to use text together flexibly and effectively. Effectiveness, of course, is defined in task-specific or context-specific terms for a particular goal. Within collaborative studies reading and writing are not inert tasks, but they are goal-directed ones, and competency is a conditional property dependent on the nature of the goal and the context. While in the shared process-product studies it would be possible to assume that good comprehenders are good readers, for instance, in the collaborative approach comprehension would not be a sign of competency, though it might be required in a particular use of reading.

Unfortunately, the theories of competence for most of these studies are at a level that far outstrips our traditional measurement techniques, and although the definition of competence here is clearly more situational than is true of more traditional views of reading and writing, these studies generally have not done a better job of specifying contextual conditions, and, remarkably, have often done a poorer one. These studies have been most praiseworthy when they have used multiple indicators, especially online measures such as think alouds or debriefings in combination with product measures. However, studies on discourse synthesis and learning from text have often theoretically defined effectiveness in terms of creativity, criticality, integration of information, personal involvement, or knowledge transformations, while using measures of t-unit length, word counts, tabulations of idea units, multiple-choice recall tests, or nonspecific holistic evaluations of writing quality. The reason that these measures match up so well across perspectives is that these researchers appear to assume that reading and writing alone are necessary preconditions for using reading and writing together competently, and they have consequently, and probably unwittingly, accepted the competency positions of the earlier discussed perspectives.

No clear developmental positions have been specified with regard to collaborative views. These studies, by their use of older students, have given a "steady-state" impression of development as if such changes or reorganizations do not happen or are irrelevant. However, this is probably not what these researchers intend. For example, Beal (1987, 1990) in her studies of how students use reading to revise their compositions, found clear developmental differences in children's abilities to recognize textual problems, although similar developmental problems were not evident for the correction tion of these texts. In other words, maturational limits on reading ability were consequently limiting writing.

The role and nature of teaching in these collaborative studies is an area of clear division and argument. There are those who believe that clearly defined literacy routines can be taught and learned and that students will become more competent in their joint uses of reading and writing (Langer & Applebee, 1987), and those who consider the powerful properties of reading-writing combination to be too complex to be learned effectively in such simple ways (McGinley & Tierney, 1989). Although direct instruction in literacy routines may be found to be effective in the accomplishment of various goals, it is also evident from a number of studies or conditions that a more guided experiential approach, similar in some ways to apprenticeship, is probably more in line with the true goals that we hold.

In this perspective, reading and writing are separate and separable entities. Reading and writing are not the same tasks, or combining them would make no difference. The claim here is not that reading and writing are totally different, just that they accomplish different, though overlapping, cognitive goals, and that under various circumstances one might be superior to the other. In fact, Tierney and McGinley (1987) go so far as to suppose that the processing similarities of reading and writing are what make them so effective for covering or criss-crossing a domain of knowledge in different ways that are learning supportive.

A FINAL COMPARISON OF ASSUMPTIONS

Each perspective has its own purposes and its own traditions. All of them offer us a greater understanding of worthwhile issues that can contribute to our grasp of the development, nature, and meaning of literacy. That these have been largely separate traditions is apparent not only in their different purposes, and in the differences that exist in their variables and measures, but also in their reference lists. Those whose task it has been to till the fields within any of these perspectives have been loathe to attend to the plow marks in the next field.

During the 1980s the literacy research community has witnessed expanding visions; it has been a period of newly opened doors and increased breadth. This expansion of vision is well documented in the programs of NRC over this decade, and in the expansion of reading-writing research (from virtually none in 1980, to the point where "Resources in Education" has given it its own index entry and boasts more than 500 articles and research papers). This expansion of vision has been a healthy one, but it has in some ways led to a kind of fractionalization of the purposes, approaches, and directions of the field. We have at times been guilty of a too-shallow consumerism, rather than recipients of a deeper understanding of literacy. A greater amount of interaction among these three perspectives could contribute to an increased depth of understanding in the 1990s. The recent coming together of reading and writing could be a harbinger of this vision for the final decade of the 20th century.

We have much to learn from and to share with each other. The work on shared knowledge-process has suggested useful instructional innovations, contributed to our understanding of the generalization or transfer of literacy learning, and to a better understanding of important measurement issues in reading and writing (such as revealing some of the limitations of using writing responses as an evaluation of reading ability). The work on social dimensions and contexts of literacy learning and use have demonstrated the necessity of understanding the role of communication in our other measurements. It has also encouraged a wonderful opening up of classrooms to a number of socially rich experiences. Collaborative approaches similarly highlight the importance of functional or goal-related contexts on literacy development and use, and serve to identify important practical goals for reading-writing education and have provided important insights into what needs to be learned and how we might guide that learning.

There are differences in the basic assumptions of these perspectives, but these seem to be due to the partial specifications of research problems that have been done (Mosenthal, 1983) and to historical accident. For example, is it that researchers who work on collaboration have just examined samples in which developmental change is unimportant, or do they reject developmental change as an important construct? Is it that shared knowledge-process measures of competency are based on deeply held beliefs about the nature of literacy, or are they intended as proxy variables for predicting what texts or performances might accomplish the most in social and functional settings? (A belief not entirely unjustified by the results of various social or collaborative studies that have employed some of these measures.)

The suggestion here is not that we all should study the same things in the same ways, only that we have a responsibility for making sure that our research adds up to something. A good deal of this adding up might come from a greater attention to and use of research findings across these perspectives. We need to make greater use of the issues, measures, and findings of each other's efforts. There have been a number of exciting examples of this type that might point to a more productive future: Dyson's

(1989) insightful inquiries into the social functions and learning of text structures in reading and writing; Raphael and her colleagues' (1986) attempts to combine instruction of text knowledge into a socially complex reading-writing context and to study the joint and separate effects of these, Penrose's (1989) analysis of the social context of collaborative performance, Spivey and King's (1989) attempts to consider the role of reading-writing knowledge in a collaborative situation, and several others. We are not suggesting that these studies are exemplary in all regards, or that these are the only appropriate examples. However, we are suggesting that studies such as these that use constructs and insights drawn from across two or more of the perspectives have a greater potential for increasing our knowledge and understanding at this time.

If we follow such leads and stress cognitive, communicative, and activity-based approaches, not separately, but together—and use these to consider a whole range of cognitive, affective, linguistic, social, and functional performances across clearly specified social and functional contexts—and if we recognize and attempt to understand the joint influence exercised by instruction, experience, and maturation on learning in these contexts, the 1990s will be a time of a deeper and truer vision of what it means to be literate and how we can help our children to get there.

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MOTIVATED LITERACY[1]

Mary M. McCaslin
Bryn Mawr College

I awoke one morning a couple weeks ago with the knowledge that I was "ready to write" this paper on "motivated literacy." My preparations accompanied the smell of a second, necessary, pot of freshly brewing coffee. I conducted the search for the scotch tape and white-out, checked that the stapler was loaded, the cartridge in my pen full, pencils sharpened, and clean narrow-ruled white printers' paper at hand. Coffee and tools now ready, I noted the dictionary on the side table, retrieved my outline, and turned on the computer.

My writing routines—here recounted minus the angst—are, I know, of not much interest, but I dwell on them in part because I suspect they are commonplace and because I think they have much to say about the acquisition and maintenance of motivated literacy. I note that how I go about the process of writing in 1989 is more an elaboration than a replacement of earlier scripts. I do not need my fountain pen and, frankly, the only time I use a stapler anymore is to fix a torn hem. But, in another sense, I do need these tools that are now incidental to the actual production process. Perhaps because they were essential components of an earlier learning, the learning of what it meant to be "literate," they remain necessary but are no longer sufficient. I now cannot write without a computer; it has been this way for some time, although I cannot recall precisely when I changed from typing my paper on the computer to writing my paper with it. I only know that the computer has transformed my thinking and my writing in fundamental ways. It has become part of my "tool kit."

We can all recount our journey into the world of literate behavior: discovering how to look at the Sunday funnies, keeping track of time until recess, counting out "one potato two potato" to see who is "it" for a game of tag, telling ghost stories at sleep-overs, writing the obligatory thank-you notes for birthday greetings, adding items to the grocery list—at some point knowing that "eggs" go in the same column with "milk." As a child I spent many hours sorting customers' charge receipts for my father's business while my mother posted the books. It occurs to me I should look up "posted" in the dictionary. I do not know if it is a "real" word; only that it meant a lot to me. Ruler, pencil, and, most importantly, eraser in hand, I would settle in at the kitchen table and add the figures in each stack, only to have them redone on the adding machine by my mother. But sometimes my sum was solely correct: she had misentered a figure—and that's what "posted" meant. It was my expression of an 8-year-old's smugness and said with the cadence of my mother's more frustrated expletive: "posted" was idiosyncratic—highly personal and saturated with meaning. Each of us owns such "special" words, whose connotation is rich and private.

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I go on because I wish to make the point that we need not adopt the role of "outsider" to discover the pattern in the phenomena—to explore the metaphors of apprenticeship, guided participation, shared knowledge, and socially situated learning (cf. Lave, 1989; Rogoff, 1989)—in our understanding of motivated literacy. Nor does the pursuit of motivated literacy seem to profit from a narrowing of attention to differences in knowledge, power, status, or belongingness embodied in linear-change constructs like "expert" and "novice," or "newcomer" and "oldtimer." Indeed, reflections upon our own journeys into knowing what it means to be literate construe a web of persons, situations, tasks, and activities: evolving roles, developing understandings. At this stage of our learning about motivated literacy, a broadening of perspective seems a more tenable strategy.

So, we each have a history of literacy passage in the world of childhood and into the world of grown-ups that involves the everydayness of observation and modeling, and direct engagement of tasks and activities—many of them simply routine—that are verbal and nonverbal, and that, although unique in its particulars, I maintain is global in its essence. Through our multiple social, instructional worlds we have learned what it means to be literate: what was once *inter*personal knowledge has become *intra*personal knowledge. I maintain that motivated literacy is like any other meaningful learning. It involves both incidental and intentional processes within the learner and within the social/instructional setting; hence, to understand the dynamics of an individual learner, one must attend to the *changing* social contexts within which the *developing* learner *emerges*. Motivated literacy, then, is learned—both as it is acquired and as it is maintained—and here understood within the dynamics of a Vygotskian framework of social and individual "emergent" interaction (Wertsch & Stone, 1985).

First I will elaborate briefly upon historical Vygotskian theory, highlighting the role of socialization processes and the development of functional language, in the facilitation of what I call adaptive learning. I will describe a program of research on the processes of adaptive learning and I will argue that adaptive learning is fundamental to the construct of "motivated literacy." Second, the potential of this perspective, which builds upon Vygotskian theory, for exploring the dynamics of motivated literacy is examined by considering what it means to be literate in a cross section of our society: current popular culture, the academy, and our public schools. The focus here is upon the messages our students likely receive from parents, teachers, and "everydayness" about what it means to be literate. Third, conceptions of motivation and ability are examined as they may inform a construction of motivated literacy. Emphasis here is on the multiple and potentially competing definitions of motivated learning held by schools, teachers, parents, and peers. Finally, some implications for the integration of these conceptions as they may inform instructional practice are considered with special attention to current reform efforts in the teaching of reading.

HISTORICAL VYGOTSKIAN THEORY

There are three interdependent facets of a historical Vygotskian perspective that are especially relevant to a theory of adaptive learning and its implications for motivated literacy: (a) the multiple functions of language, (b) internalization processes and the nature of change, and (c) the unit of psychological analysis (for more complete discussion, see McCaslin Rohrkemper, 1989). Each process informs the individual's mediation of experience, an experience that is at once cultural (it represents socially structured tasks and tools) and historical (it reflects the "storehouse" of what today we call "semantic knowledge," "learning to learn strategies," "comprehension monitoring," and "metacognitive awareness"). I will briefly discuss each construct.

Theory of Language

Vygotsky was an avowed Marxist and his theory of language extends Engels' position that communicative, social language evolved from and within human labor and was uniquely human. Similarly, Pavlov (1927) provided a critical distinction between the "first" signal system, perception, and the "second" signal system, language. Pavlov hypothesized that language, the second signal system, was the cause of the differences between human and animal learning. He argued that "it is precisely speech which has made us human" (as quoted in Slobin, 1966, p. 112). Thus for Pavlov, as for Engels, speech was peculiar to humans, and, in interaction with perception, the first signal system, allowed one to master the environment as opposed to being controlled by its stimulus properties. Language, then, is responsible for the human ability to direct and mediate behavior. The mediational and self-directive role of language—of the second signal system—became the cornerstone of Vygotsky's research and theorizing. His interest was in the dual functions of language, communication and self-direction, and how these evolved. In particular, he focused upon the dynamics of children's transition from exposure to word meanings by *others* in their social/instructional environments to children's emergent ability to expose *themselves* to word meanings and thereby *direct their own* behavior as well as communicate with others.

The developmental sequence of the two functions of language is from social or *inter*personal to self-directive or *intra*personal. The implications of this progression are critical. Not only does language acquire two distinct functions, but the source of self-directive inner speech is the social environment—the cultural and historical language environment.

The structure and function of each type of speech—external communicative and internal self-directive—differ. Inner speech branches off communicative (external) speech. Vygotsky argued that ultimately, "the speech structures mastered by the child become the basic structures to his thinking" (Vygotsky, 1962, p. 51). Inner speech, then, is the opposite of external speech. External speech involves turning thought into words, whereas inner speech involves turning words into thought (1962, p. 131). Inner speech is thinking in pure meanings and is the link between the second signal system of the social world and the thought of the individual.

Processes of Internalization

The sequence of language development, from interpersonal and communicative with others to intrapersonal and self-directive, squarely locates the emergent capacity for "self" direction in the interpersonal realm; the role of the social environment is preeminent. Mind is the product of social life, it is a "form of activity which was earlier shared by two people (originated in communication), and which only later, as a result of mental development, becomes a form of behavior in one person" (Luria, 1969, p. 143). The psychology of the individual is a multiplicative product of his social encounters.

"Emergent interaction" has been coined by Wertsch and Stone (1985) to capture the dynamics of this internalization process that integrates the social/instructional environments in the child's experience—the interpsychological, cultural world—with the child's natural developmental processes. Internalization, then, is inherently social and interactional, and at its core is the mastery of signals—language.

This conception of internalization embeds the individual within her culture; it blurs the distinction between self and other. The individual is intricately a part of the perceived social world; thus self-knowledge is not independent of knowledge of others. One could argue that reports about self are not interpretable without a context of "perception of other" within which to analyze them. Indeed, one finds many empirical examples to suggest that terms like "self-perceptions of ability" vary with context and/or comparison group (McCaslin, 1989; Midgley, Feldlaufer, & Eccles, 1989; Reuman, 1989).

Unit of Psychological Analysis

Vygotsky voiced concern about the false dichotomy that characterized much of psychology at the turn of the century and that continues. He anticipated present-day attempts to integrate "will" with "skill" when he wrote (Vygotsky, 1962):

> We have in mind the relation between intellect and affect. Their separation as subjects of study is a major weakness of traditional psychology since it makes the thought process appear as an autonomous flow of "thoughts thinking themselves" segregated from the fullness of life, from the personal needs and interests, the inclinations and impulses, of the thinker . . . . (p. 8)

Thus, Vygotsky argued that the basic unit of psychological concern was the integration of the affective with the intellectual and their emergent interactional origins with the social/instructional environment. He used word meaning as the basic unit of analysis for exploring this integration. Current Soviet psychologists have challenged this last position and offer instead the construct of "activity" that embodies tool-mediated, goal-directed action as the appropriate basic unit with which to examine the integration of the affective with the intellectual (Wertsch, 1985; Zinchenko, 1985).

FROM THEORY TO RESEARCH

These three tenets of the historical Vygotskian theory of the social origins of psychological activity inform the structure of a program of research on adaptive learning to which I now turn. This structure also organizes subsequent sections concerned with the implications of this general perspective for a theory of motivated literacy. Ultimately we will explore cultural definitions of literacy, the potentially competing constructions of motivation that emerge from multiple social/instructional environments, and the potential informativeness of the integration of these cultural messages in approaches to reading instruction.

Adaptive Learning: Towards a Definition

My primary interest is in the development and enhancement of what I call "adaptive learning" (see also, Rohrkemper & Corno, 1988). By adaptive learning I refer to that ability to take charge of frustration and maintain the intention to learn while enacting effective task strategies in the face of uncertainty—taking charge of one's motivation, emotion, and thinking. Adaptive learning allows one to initiate and to transform tasks: It enables proactive behavior in either case.

Adaptive learning is not yet another euphemism for high ability. Indeed, my research provides some support for the hypothesis that, given the structure of our classrooms and the diagnostic insensitivity of much classroom work, moderate ability learners are provided more opportunities to become, and to know themselves as, adaptive learners. This is because high ability learners too often readily succeed at tasks that lack challenge. Hence, these students have little need to be adaptive learners—to reread, redo, or seek assistance. Too readily earned success on tasks that are not difficult enough, and thus are understimulating, is not educative. Uninformative success, or success that occurs without increased understanding, does not further learning: not about the subject matter at hand nor about oneself as an agent in the face of uncertainty. Thus, high-ability learners are less apt to experience those situations of hard learning in which we learn about our frustration thresholds—in which we learn how to swallow the lump in our throat and go back and try a different way. In short, those situations in which we learn how to cope with stress and we learn that we are more than our achievement. Experiences that facilitate adaptive learning that high ability students do engage in are likely those that occur when they transform a classroom task to make it more challenging (e.g., compete against earlier times to completion, construct an essay with internal rhyme) or to occur in nonschool settings (e.g., with parents, community groups, sports).

Similarly, low-ability learners also are more apt than their moderate ability peers to suffer from diagnostic errors in task difficulty. These students chronically fall short on tasks that are too difficult, and thus overwhelm, or succeed on tasks that are so prescriptive and so furiously designed for success that the learner is rendered numb and ultimately passive in its attainment. In either case, mindless failure or uninformative success, the low-ability learner is less apt to experience a range of task challenge that results in strategic self- and task-transformation behavior. Rather, it is the "moderate" ability learner who is more apt to experience a balance between more and less easily "learned" tasks and "earned" outcomes.

Thus, the moderate ability learner has more experience with a variety of learning outcomes. This likely affords a distinction between process and outcome in the first place, and secondly, allows for an understanding of the malleability of the learning process. Such understanding allows elaboration and fine-tuning of a range of learning and motivational strategies—an expanding and specialized tool kit. Hence, it is the moderate ability learner who is most apt to display what I call adaptive learning: to recognize that tasks, and the strategies we bring to them, are malleable. And it is the moderate ability learner who is more apt to enact this knowledge rather than become undone by a too difficult task or defeated by one that is too easy. These learners know that they can recover from initial failure or incomplete learning and yet still be capable of success. They do not overdwell on either outcome. Moderate ability learners maintain a relatively flat emotional profile; they hold generally positive, but focused, expectations unless evidence does not allow them. When moderate ability learners do fail, they tend to not engage in self-evaluation and instead remain neutral and keep their thoughts about themselves close to the task (McCaslin Rohrkemper, 1989a). They are more resilient. Adaptive learning is not another term for high ability, then, it is acquired—through experience with a range of tasks within multiple, supportive social/instructional environments.

Adaptive learning is not isomorphic with self-regulation. I term the facility to transform and initiate tasks and self "adaptive learning" rather than self-regulation because I want to stress *inter-* rather than *intra*individual states. It is essential to stress that a Vygotskian perspective highlights the role of the social/instructional environment in the development of adaptive learning. By social/instructional environment I refer to institutions, parents, teachers, peers, tasks, and activities that students influence and are influenced by as they engage in learning, be it about themselves, their community, or the imagery in *Jane Eyre*. From this point of view, then, adaptive learning underlies motivated literacy.

The research program described here attends to reported inner speech as a function of task difficulty, type of social/instructional environment, and individual differences among learners. It can be considered an elaboration of a Vygotskian perspective that incorporates insights from attribution theory (e.g., Weiner, 1985), information processing theory (e.g., Simon, 1969), social learning theory (e.g., Bandura, 1977), and socialization research (e.g., Baumrind, 1971).

Conception of Change

One way to conceptualize "emergent interaction" that involves school-aged children is to consider the co-occurrence of developmental processes with a change in socialization. Thus, children experience an increase in the number of social/instructional environments in their lives at about the same time that they become capable of being in *control* of themselves rather than *controlled by* the stimulus properties of the social/instructional environment. Children's social/instructional worlds expand considerably at about the same time they develop an increasing facility with the second signal system and emergent capacity for self-direction. This is especially the case for children of working mothers (Scarr, Phillips, & McCartney, 1989).

Exposure to an increased number of social/instructional environments requires adaptive learning. Corno (1989) for example, discusses just this point in her analysis of classroom literacy—being able to read classrooms as text—what she defines as the "process of coming to know the commonly acknowledged structures and functions of classrooms and of being able to use this knowledge productivity [sic] in the social and academic roles that classrooms define" (1989, p. 30). Some social/instructional environments are more supportive, informative, and appropriately challenging and, thus, facilitate adaptive learning better than others. And gaps between the social/instructional environments of home and school can demand adaptive learning of some students more than others.

For example, the basic classroom social frame of turn taking, that rests upon a master-subordinate physical frame, is congruent with early adult-child interaction in middle-class homes (Corno, 1989; Heath, 1982). Middle-class parents, like teachers, also are more apt than working class parents to ask their children questions for which the parent already knows the answer (Heath, 1982). And striking inconsistencies between home and school can occur in the norms surrounding things like helping behavior, usually valued at home, yet often considered cheating in school (Good, 1988).

Interviews with parents, teachers, and students focused on the enhancement of adaptive learning and the treatment of mistakes also provide some insight into the associations some students have with adults repeating themselves "slower and louder" (McCaslin, in preparation). A teacher answering a student question by restating more slowly and loudly usually is assuming that the student needs repetition and more time to "stay with her," or was unable to hear, or that understanding and listening are correlated. Parents' slower and louder speech, on the other hand, is often associated with children's misbehavior, or thoughtless behavior, and thus, has a ring of culpability; it is a warning and often a promise of punishment. Hence, some students are confused, but convinced, that the teacher yells at them when they ask a question. They tacitly learn that not understanding is akin to misbehaving; one does not make mistakes, one behaves badly.

Thus, home and school language and social interaction patterns can differ in important ways. As Corno (1989) argues, not to address the differences between home and classroom social/instructional environments is to place some children in a "catch as catch can" position toward their adjustment to the classroom. We know that familiarity instills perceptions of self-control and that perceptions of self-control promote effortful behavior (Bandura, 1977). Currently, our classrooms are more familiar social/instructional environments for some students then they are for others. And as is so often the case, students from higher socioeconomic homes are more likely to receive a familiar language and a familiar set of expectancies in school than are their less advantaged peers.

Classroom socialization also homogenizes speech and other social behavior, and so defines what it means to be literate even at it teaches literacy (Graff, 1979 in Corno, 1989). Thus, classroom social/instructional environments not only make demands on students, they are simultaneously sources of empowerment as students internalize and mediate their experiences (Halperin, 1976; Rohrkemper, 1984, 1985). As students acquire more experience in classrooms, their language to describe classrooms and their perceptions of themselves within them becomes more school-like than home-like. Hence, parents' relative lack of facility to describe their children in classrooms becomes more pronounced as their child moves through elementary school (McCaslin, in preparation). Indeed, students' sense of themselves as learners maps onto teachers' constructions so that students' self-descriptions and reported inner speech in the face of effortful learning is congruent with teacher description and instructional language (McCaslin Rohrkemper, 1989a). One hypothesis to emerge from this scenario concerns the extent to which the capacity to integrate the home and school social/instructional environments is an important determinant of enhanced perceptions of oneself as a learner, the development of functional inner speech, and, hence, adaptive learning.

The Functions of Inner Speech in Adaptive Learning

Inner speech guides thought and action in nonautomatic "effortful" (Posner, 1979) cognition. In this research program, two types of inner speech were identified that reflect concern with the integration of the affective and the intellectual (McCaslin Rohrkemper, 1989a; McCaslin Rohrkemper, 1989b; Rohrkemper, 1986; Rohrkemper & Bershon, 1984; Rohrkemper, Slavin, & McCauley, 1983). Self-involved inner speech reflects control over the self through enhancing motivational and affective statements (e.g., "don't get mad [because] you can do it, just hang in there"). Task-involved inner speech reflects control over the task through problem solving, strategic instructional statements afforded by the task, and modification of the task if necessary and possible ("ok, start over on a new piece of paper with a completely new way [rereads directions, changes algorithm]"). Together, self-involved and task-involved inner speech enable adaptive learning by allowing students to modify the task or the self, and by empowering them to initiate and transform tasks or self.

Results indicate that students differ in the fluidity of their reported inner speech, the sophistication of the task-involved strategies that they can employ, and in the types of affective and motivational configurations that enable them to persevere—to overcome self-doubt and maintain the intention to learn, and to quit—to recognize when perseveration is overdetermined and not facilitative. It seems reasonable to hypothesize that, even within developmental and task differences, the sources of task-involved inner speech are more readily identified and homogenous, and tied to specific school-learning or, if found lacking, to student ability level and/or quality of prior experience. In contrast, sources of self-involved inner speech are likely more varied, reflecting multiple influences from home, school, and peers. An example may help clarify this distinction. The following were excerpted from interviews with two sixth-grade girls discussing how they handle the "hard stuff" in math. Their reports are typical for their age group when reporting inner speech associated with difficult tasks.

It should be kept in mind, however, that these students are discussing their approaches to coping with learning stress in general. Inner speech involves turning words into thought; here we have compounded the process by requesting that the pathway be made prototypical and then communicative for others. Thus, the density and structural differences that are theorized to characterize inner speech have been stereotyped and diffused in the translation. The reports are, nonetheless, informative in that they provide clues about the functions of inner speech.

> A lot of times I get sick of things so I just want to stop. And I do . . . I always, whenever I'm working and I just get sick of working and I just stop because I can't stand it anymore. I think of things that are, I like to do. Like in school, I'm going

> to play with my friends. I think, "Um, all the things that are fun that we do, and stuff. But I have to get this done and *right* before I can go and do that."

Compare this student's self-involved strategic use of fantasy, combined with real-world contingencies, to keep her on task with her classmate's reported strategies described below. The first student's reported inner speech indicates that learning (or perhaps, more correctly, successful performance) is a means to the goal (fun time with friends). Her classmate's reported inner speech indicates motivational and emotional supports that are enabling means to the goal of meaningful learning.

> Well, I think I'm going to get them all wrong. And I kind of feel like I have to get up and walk around and think about it. I feel like I have to stop and work on something else for a little bit. I might get up and work on spelling for a minute 'cause that's pretty easy and I don't have to think about it, 'cause spelling I just know the answers and they're right there. I can think about the math and what I'm going to do . . . [It's time for a break] when I get pretty frustrated and think to myself you can't do this and I start tearing, I start biting my pencil then I know I have to get up and do something else. I just I get so frustrated with it I can't think . . . I start to fiddle with my hands, go like that. I know I have to do something else. 'Cause I really get mad. I don't take a real long [break] time, maybe just ten minutes. Then I come back to work again. Just to get it out of my mind for a minute.

Both students conclude with similar procedural or algorithmic task-involved strategies to reach solution. Their self-involved paths to that solution illustrate the range and complexity of self-directive inner speech and its dynamic interplay with one's general comprehension of oneself as a learner. The examples underscore the question of internalization, and in so doing, move us away from locating the "psychological" solely within the individual. We look instead to the nature of the multiple social/instructional environments that, through emergent interaction with the individual, result in unique learner constructions and re-constructions of self-direction. Thus, understanding how a student copes with present learning frustration involves some understanding of how prior and ongoing socialization influences of home and school have been internalized.

We look as well to the specific events that allow this development, to the types of tasks that stimulate inner speech. As stated earlier, tasks that do not require striving do not challenge and therefore do not directly provide the opportunity for the development of adaptive inner speech. Similarly, tasks that are too prescriptive do not allow students to learn about themselves as learners and therefore do not enhance the development of self-directive inner speech (see also, Rohrkemper & Corno, 1988). One implication of this interplay between task demands and the development of adaptive, functional inner speech concerns how to design tasks that will enhance the integration of self-involved and task-involved inner speech so that each is mutually supportive.

In sum, students differ in their affective and intellectual strategies for coping with differing tasks. A Vygotskian orientation is distinctive in its interest in the emergent interaction between the developing individual and the changing contexts of his or her multiple social/instructional environments. This internalization process, in interaction with tasks that are challenging and informative, results in unique constructions of self and fluidity of functional inner speech, and hence, adaptive learning.

CULTURAL DEFINITIONS OF LITERACY

We now consider some implications of students' adaptive learning, and the general Vygotskian perspective, for a theory of motivated literacy and informed classroom practice. We first turn to current debates about literacy and how they differ in the popular culture and the academy.

Popular Culture

American citizens have become worried of late about our relative standing in the world. Certainly concern with our economic competitiveness has been with us through much of the decade; indeed, our worries about Japan can now be expanded to include the European common market. Our national identity, that sense of what it means to be an American, at some points reduced to "English language only" conceptions, also is likely to undergo increased deliberation as other countries no longer provide the easy contrast points between "us and them" that makes us comfortable with the "us." So, I think it is fair to say that American citizens have become worriedly self-conscious. And worry has fueled debates over what it means to be literate, and who gets how much, when, and where. The popular press is replete with international achievement test comparisons. We read that our children's ranking in math and science and literature and geography and facility with languages is not any more competitive than are the cars produced in Flint, Michigan. We learn that our country's willingness to invest in the production of knowledge (in research, development, and dissemination), other than defense weaponry, is falling behind the investments of other societies. We read of the "closing of the American mind" and student editorials in the *New York Times* (1989) claiming that, at one of our most prestigious colleges, students are not allowed, let alone encouraged, to learn. Instead, students are pushed to quickly produce. It is "extra good" if you can complete a double major. Parent concerns that their infants ultimately get into these prestigious schools are well known, profited from, and parodied in movies like *Baby Boom*. We laugh. There is emerging evidence that we damage our children in our self-promotion of their success, yet we still indulge. Popular culture portrays both an insecurity and a concomitant assertion that there *is* a cannon, there is a standard of knowledge that is requisite to being literate. And this Christmas, the flyer in *New Yorker* tells me, you can purchase J.D. Hirsch's (1989) *A First Dictionary of Cultural Literacy: What Our Children Need to Know* at your local Doubleday Book Shop. What a Christmas.

I dwell—perhaps overdwell—on popular culture conceptions of literacy, and the context of those conceptions, because of the marked influence that everydayness has on individual thinking and behavior. Jacobs and Eccles (1985) for example, have documented a change—a decrease—in mothers' assessment of their daughters' mathematics ability as a function of popular press reports on the research program on gender and mathematics giftedness conducted at Johns Hopkins University.

The Academy

Even as the spin-it racks at the supermarkets tell us there is a body of knowledge, that if retained, will make us educated, the academy is rife with debate about what it

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means to be literate and the ethics of differential access to that state. My college is not unique, I am sure, in our discussions about the relation between tradition and "knowledge." Academics *debate* the stance that some texts are worthier than other texts, that there is some authority concerning what is to be known, that knowledge is historical memory not mere "data" or information in the ever-present. It is a lively debate, to be sure, and the source of some wonderful constructs like "cultural autolobotomy" (Ozick, 1989, p. 124).

My point is that faculty and students around the country are struggling to define what it means to be literate and for whom. How do we think about American minorities outside of the Sociology Department? Women outside of Women's Studies programs and child development research? International and nonwestern cultures outside of political science? The scenes at Stanford University this past year were a vivid but not unique example. At the same time that curriculum debate and revision are the struggle of the academy, however, the popular culture is quite confident that it has the hold on the means *to* and what it means to *be* literate. Our changes in curricula clash with popular conceptions. Perhaps is this nowhere more evident than in the Whole Language movement toward reading instruction (McCaslin, 1989).

CULTURAL DEFINITIONS OF MOTIVATION

Multiple, and at times competing, definitions of what it means to be motivated and able are embraced in our culture. It is useful to consider the potential array of these constructions from parents, principals, teachers, and students, as part of the context of motivated literacy. To illustrate, let us examine four sources of "authority" on what it means to be motivated—four distinct social instructional environments—that overlap in the life of one sixth-grade female, Nora, a student of moderate ability.

Home Social/Instructional Environment

Nora's family consists of several brothers and working parents. Each is expected to "do the best you can." Effort is highly valued and effortful learning is emphasized more than ready learning associated with ability. So much so, that Nora's mother is concerned that Nora does not "earn" her way because "she learns easily and doesn't need much study." There is no premium on high native ability.

Effortful performance is distinct from effortful learning in Nora's family. Effortful performance essentially concerns acting responsibly. The home approach to responsible behavior means that certain mistakes are "OK" (e.g., those that occur in spite of sustained effort or that are due to "legitimate" lack of awareness) whereas others are not (e.g., due to lack of sustained effort or "irresponsible" behavior). Given the high value that home places on effortful learning, one hypothesis that follows is that sanctioned mistakes followed by effort may well be the most valued behavior. In Nora's family morality is intertwined with effort, self-awareness, self-reliance, and the golden rule.

School Social/Instructional Environment

Nora's school district's motto is "one year's growth for every child" as defined by scores on the standardized achievement tests administered each spring. Nora's school expects to meet, if not exceed, district level goals.

Academic expectations are paramount from the principal's perspective, especially standardized test performance. School-level expectations for student test performance and the premium on realized high ability infiltrate the classroom through several channels, ranging from who is selected to read the morning PA announcements, to whose achievement is celebrated in those announcements, to who leaves the room for "gifted" classes. At the school level high ability combined with effort that results in high achievement test performance receives the highest acclaim.

Classroom Social/Instructional Environment

Nora's teacher's (Mrs. Smith's) conception of student learning differs from both the effortful learning and performance that may or may not be successful, valued by Nora's mother, and the effortful ability, resulting in high standardized test scores, valued by the principal. Mrs. Smith values successful, effortful, achievement. She seemingly equates effortful behavior with high classroom achievement; classroom tasks are believed appropriately targeted in difficulty level and sequenced by subskill so that students will perform successfully if they try. With effortful cognition, students will learn. "Learning" means successful achievement. Thus, student effort is *defined by* successful achievement.

In this classroom, like Nora's home, effort is always expected. An important difference, however, is the linking of effort to outcome. At home, effort per se, independent of outcome, is required. In the classroom, effort is defined in large part by the outcome. Thus, at home one can evaluate one's effort by the value and intention that underlie the process; in this classroom, for this teacher, the outcome of effort must be known to determine its value. And the value of effort espoused by mother and teacher is at cross-purposes to the value on ability conveyed by the principal and, as we will see, constructed by the students.

Peer Social/Instructional Environment

These are sixth graders. Teachers observe and interact with groups of students at the same age levels and, as a result, have a broader conception of age-related behavior, motivation, and cognition than do most parents. Hence, what Mrs. Smith understands as developmental, "stage-related," patterns in peer relationships and judgment style typical for sixth-grade students, Nora's mother attributes to Nora's (negative) personality traits that mother "wants changed." Both women are aware of the peer and friendship pressures students this age are experiencing.

Neither Nora's mother nor her teacher appear aware of the premium sixth-grade students place on ability, however. And for these sixth-grade students, ability is defined by rate. As Stipek (1984) and others have discussed (Ames, 1988; Nichols, 1984), by sixth grade students are well ensconced in a compensatory perception of ability and effort such that more expended effort indicates less expendable ability. Effort takes time. Amount of time spent on task is a public index of effort readily available to students as well as classroom researchers. Only sixth graders are not apt to equate "time on task" with motivation or opportunity to learn, rather, they are more likely to infer level of ability.

Nora and her classmates readily discuss how fast they can do their work relative to others, how people feel when they are slower than others, and, importantly, how to compete on rate without being too obnoxious so as not to jeopardize friendships. Hence, the fourth effort/ability message in Nora's social/instructional worlds emerges: effort is inversely related to ability; one's personal worth is defined in large part by one's ability; the student who visibly and continually tries has limited ability.

The resultant cliques organized around status in the "gifted" programs and other school-level perks are not surprising. Albeit by a differing route, the students arrive at a hierarchy similar to their principal's. Mrs. Smith's, and especially Nora's mother's definitions of motivation, based as they are in effort, the controllable aspects of learning, define the "also rans." We see, then, another constellation of influences on the development, enhancement, and enactment of inner speech.

MOTIVATED LITERACY AND WHOLE LANGUAGE INSTRUCTION

Within a general Vygotskian perspective, Nora's motivation to learn is interpretable within the framework of emergent interaction, the integration of the social/instructional environments of her experience—her *inter*psychological, cultural world—with her natural developmental processes. Nora's conceptions of literacy are also interpretable within this framework. The emergent interaction of her developing capacity to "know," her changing understanding of literate behavior—of what it means to know, and her negotiation of the multiple, and as we have noted, potentially contradictory notions of literacy held by home, "everydayness," and school (and even here potentially defined differently by principal, teacher, and peers) is a useful tool for understanding motivated literacy.

Nora's mother may well look poorly on an assigned essay that comes home with errors in punctuation and spelling, yet boasts a "good thinking!" message from the teacher. Nora is apt to get a "mom talk," as she calls her mother's sermons, and made to do it over until it is "right." Nora's teacher's credibility is likely on the line, certainly by Nora's mother, and now perhaps by Nora as well. Both Nora and her mother are getting messages from the popular culture that the form and physical attractiveness of the messages are what is important—not its accuracy or level of critical comment. I suspect that this is not an unusual scenario for teachers who are trying to teach language arts as something other than, or in addition to, grammar and spelling rules, and who have children write their own stories for reading material. Certainly these differing conceptions of what it means to be literate between home and school have some role in Nora's emergent, motivated, literacy.

What these examples allude to, of course, are the curricular changes in language arts instruction that are associated under a pretty broad umbrella termed "whole language." As I understand the whole language perspective, advocates share with Vygotsky (1978) the belief that it is not possible to have a direct influence on and produce change in another and look instead to educative opportunities that are socially situated. Indeed, whole-language advocates are sympathetic with T. S. Eliot's lament that "we had the experience but missed the meaning" (Eliot, 1943). Hence, they reject any involvement in "direct instruction" or the presentation of teachers and texts as authoritarian transmitters of knowledge to the awaiting, if passive, learner.

This portrayal of "educator" is not likely the one envisioned by Nora's mother, or anyone else's, for that matter. In their zeal to reject reading instruction that attends to direct instruction in everything but comprehension monitoring, some whole-language advocates seem to have equated *lack* of instruction in comprehension with the *futility* of instruction in comprehension. I doubt that this is seen as educative by the popular culture criteria or in many homes. Indeed, the failure to instruct does not inform the efficacy of the instruction if it were to occur.

The Vygotskian portrayal of the active, constructive, and reconstructive learner who does not profit from transmitted information in simple, direct ways, has the potential to empower the whole language perspective, not merely envelop it (McCaslin, 1989). A Vygotskian perspective of emergent interaction, self-directive inner speech, and adaptive learning does much to frame research questions on motivated literacy that inform practice and enhance theory development—and thereby enables self-criticism and the accumulation and interpretation of evidence.

MOTIVATED LITERACY AS SOCIALLY-SITUATED LEARNING

In closing, the construct of motivated literacy is a socially situated one. It is in dynamic flux. Motivated literacy exists in the emergent interaction of the interpersonal culture that, as we have seen, consists of multiple, potentially competing, social/instructional environments, with the intrapersonal, natural developmental processes of the individual. What is motivated literacy in 1989, by definition, will not be so defined in 1999. Our task as educators, as I see it, is to provide learners the opportunities and the supportive social/instructional environments within which to become adaptive learners who transform even as they are transformed by motivated literacy.

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THE EFFECT OF READER STANCE ON STUDENTS' PERSONAL UNDERSTANDING OF LITERATURE

Joyce E. Many
Texas A & M University

In her transactional theory of reader response, Rosenblatt (1978; 1985) describes the text as serving as a pattern for the reader, guiding the reader as he or she creates a personal version of the literary work. This uniquely individual literary experience that each reader creates and the factors which influence that personal meaning making are important to researchers examining students' response to literature.

Reader-response theory's emphasis on the role of the reader has resulted in a valuing of individual interpretations. Literature is seen as events to be lived through, offering opportunities for self-knowledge and for understanding others (Cooper, 1985). Consequently, new ways of describing the varying interpretations reached by different readers have evolved which acknowledge the validity of personal understanding (Cox & Many, 1989; Lehr, 1988).

One factor which has been hypothesized to affect a reader's understanding of a work is the reader's stance, or focus of attention (Rosenblatt, 1978, 1985). An *efferent stance* indicates the reader's attention is focused on the information which is to be taken away from the reading and can result in an analysis of or study of the text (Cox & Many, 1989). When assuming the *aesthetic stance*, on the other hand, the reader's focus is upon the lived-through literary experience and the thoughts, feelings, images, and associations which are evoked.

Although Rosenblatt and other reader-response theorists, researchers, and teachers have focused on the aesthetic stance and personal understandings of literature as a point of discussion or as an underlying assumption in their works (Corcoran, 1987; Evans, 1987; Probst, 1988; Rosenblatt, 1938, 1978, 1985, 1986), little research has been conducted examining Rosenblatt's concept of stance in response to literature or how stance is related to other factors in students' responses. Only one study (Cox & Many, 1989) has investigated the relationship between a reader's stance and level of understanding of literary works. As part of a larger study, Cox and Many examined the free responses of 38 above-level fifth-grade students to four novels. The purposes of their study were (a) to develop data-driven instruments to describe the stances taken in a response and the level of personal understanding reached, and (b) to examine the possible relationship between stance, level of understanding, and story preference. Although prior to Cox and Many's study Rosenblatt's use of stance had primarily been used to refer to the focus of attention during the actual reading event, the results indicated stance plays a role in affecting expressed responses as well. A significant positive relationship was found between the mean stance for all four novels and the mean level of understanding reached, ($r = .36$, $p < .0001$).

The purpose of this study was to further explore the variations in stances taken in expressed responses by investigating an older population. Although junior high students' responses to literature have been previously investigated in terms of the objective or subjective formulation of the response (Applebee, 1978), the relationship between reader expectation, comprehension, evaluation, and preference (Cullinan, Harwood, & Galda, 1983), and the elements of the response (Golden, 1979; Purves, 1973, 1981; Rogers, 1988), no research has examined the stances taken in junior high school students' responses or the relationship of aesthetic and efferent stances to personal understanding of a literary work.

Furthermore, Cox and Many's study examined only the relationship between the mean stance and mean level of understanding for all four novels read, leaving unanswered the question of whether the relationship between stance and level of understanding is influenced by text. Although much research has documented the effect of text on students' response to literature (Purves, 1973, 1981), recent research indicates response strategies can be consistent across texts (Beach, 1987). Therefore, this study examined the relationship of stance to level of understanding for three individual short stories to provide information as to whether that relationship is text specific.

Specifically, the purposes of this study were (a) to describe the stances taken in eighth-grade subjects' responses to literature, (b) to analyze the relationship between the reader's stance in a response and the level of understanding reached in the response, and (c) to analyze whether the relationship between reader stance and level of understanding is consistent across individual texts.

METHOD

Subjects

Subjects for the study were 51 eighth-grade students (26 males and 25 females) in two intact classrooms involved in a larger research project (Many, 1989). Two participating schools were chosen, one serving students from a low-socioeconomic level and the other serving students from a middle to upper socioeconomic level. One class was randomly selected from the available eighth-grade English classes at each school.

Materials

Three realistic short stories were chosen through a pilot study which used six possible selections. Research indicates realistic stories are preferred reading in the upper elementary and middle school grades (Golden, 1979; Purves & Beach, 1972) and stories needed to be short enough to allow students to complete the reading in one sitting. Therefore, criteria for the six initial story selections was based on probable interest, appropriate readability, and story length. Using an adapted version of Sword's (1985) "Criteria for Evaluating Picture Story Books," a panel of reading experts rated all six stories as above average on elements of plot unification, plot believability, imaginative plot, main character portrayal, believability of main character, use of vivid imagery, and establishment of mood.

The stories used in this study were those selected for the larger research project based on overall preference by all students participating in the pilot study. The ratings of the three selected stories (1—high, 5—low) by the eighth-grade students in the pilot were "The Dollar's Worth" (Werner, 1979)—2.5, "The Secret of the Aztec Idol" (Bonham, 1976)—3.1 (hereafter referred to as "The Aztec Idol"), "The Runaway" (Holman, 1976)—3.3.

Procedure

Pilot study. Two classes at the eighth-grade level from a university lab school participated in the pilot. The students were drawn from the same population as the subjects in the actual study itself. Students were asked to read and respond in writing to one of the six stories and then to rate the story on a 1–5 scale. Results from the pilot study were used to determine the stories to be used in the actual study and to refine data collection procedures.

Data collection. For each of the short stories, subjects were asked to read the selection and then to respond to the prompt, "Write anything you want about the story you just read." Data were collected in three separate episodes over a 9-week period. The order of the stories was randomized from subject to subject to account for possible influence of story sequence on response.

Data analysis. Data were analyzed to determine the primary stance of the response as a whole and the level of understanding reached. The instruments used to code the responses are described below.

The reader's stance when responding to the literary work was examined using Cox and Many's (1989) *Instrument for Measuring Reader Stance on an Efferent to Aesthetic Continuum.* This instrument was based on Rosenblatt's description (1978, 1985, 1986) of the aesthetic and efferent poles of the reader stance continuum and Corcoran's description of the types of mental activities involved in an aesthetic reading (Corcoran, 1987). Like earlier data-driven methods of classifying response to literature (Applebee, 1978; Galda, 1982; Purves & Rippere, 1968), this rating system emerged from the data analysis of subject responses. Responses rated on one end of the 5-point continuum indicate a primarily efferent stance, while scores on the opposing end indicate a more aesthetic stance. Table 1 gives a brief description of each level on the instrument.

The responses were also classified according to the level of personal understanding reached using *An Instrument for Rating a Reader's Level of Personal Understanding* (Cox & Many, 1989). The instrument evolved out of Cox and Many's research and is based on Applebee's (1978) levels of meaning and Ricouer's (1976) interpretation theory. The level of understanding rating indicates the degree to which the response is tied to story events and the level of abstract generalization reached in the response. Table 2 gives a brief description of each level of personal understanding.

It is important to note that the instruments allow for responses demonstrating from low to high levels of understanding at both the efferent and aesthetic poles of

Table 1

Levels of Reader Stance on an Efferent to Aesthetic Continuum

Levels	Description
1. Most Efferent Response	Analysis of elements according to outside structure (literary elements, realism, what was learned)
2. Primarily Efferent Response	Retelling (concentration on relating the story line, narrating what the story was about)
3. Elements of Aesthetic and Efferent	Portions of both efferent analysis and aesthetic experience of work (equal emphasis on both, primary focus using a single stance indeterminable)
4. Primarily Aesthetic Response	Selection of story events or characters to elaborate preference, judgment, or description (I enjoyed it when . . . , I thought it was good/funny when . . .)
5. Most Aesthetic Response	Focus on the lived-through experience of the literary work (the world created while reading and the emotions or associations resulting from the experience).

the continuum, as shown in the examples below. For instance, the following response would be scored at the most efferent stance and would exemplify the highest level of understanding.

> *Stance Rating 1—Level of Understanding 4*
>
> It is a very unusual show. It tells us that we can do anything we want to. It also tells grownups a thing or two. One of the things it told grownups is: Before you step ahead make sure you've seen all the details.

In contrast, the next example is also written from the most efferent stance but it would be scored at the lowest level of understanding.

> *Stance Rating 1—Level of Understanding 1*
>
> It was a pretty good story and I enjoyed it. The characters were designed pretty well but I didn't like the way the plot kept skipping time and not telling you what was happening. They picked a good setting for a plot like this one.

At the aesthetic end of the continuum on the stance instrument, responses can also range in the level of understanding demonstrated. The next example shows a

Table 2

Levels of Understanding

Levels	Description
1	Does not go beyond literal meaning of story
2	Indicates some interpretation of story events
3	Demonstrates understanding of specific story events through analogy to self or world
4	Reaches a generalized belief or understanding about life

response written from the most aesthetic stance which would be rated at the lowest level of understanding.

> *Stance Rating 5—Level of Understanding 1*
>
> I really enjoyed reading the book, it kept me curious throughout. After I was finished I kept going back and thinking about the story. I could picture what was happening.

Finally, as the next response illustrates, aesthetic responses can also demonstrate the highest levels of personal understanding.

> *Stance Rating 5—Level of Understanding 4*
>
> I probably wouldn't have handled it as well as the family in the story did when she died, if my sister or daughter fell out of a tree and died when she was only eleven. The story really made you sit back and think about how unfair life can really be.

The coding of all the data was completed by the researcher. Independent raters, trained in the use of each instrument, coded a random sample of 20 percent of the data to check for reliability. Interrater reliability was established using the Pearson Product Moment Correlation Coefficient. For the holistic rating of stance the reliability was $r = .79$, and for the holistic rating of level of understanding, $r = .81$.

RESULTS AND DISCUSSION

Reader Stance

Analyses of the stances subjects took in their responses revealed responses at all points on the efferent to aesthetic continuum. As shown in Table 3, 38% of the total responses were on the efferent end of the continuum (ratings 1 and 2), with 9% of the total responses written from the most efferent stance (rating 1). The efferent responses concentrated for the most part on evaluating the literary elements or on the

Table 3

Responses at Each Point on the Stance Continuum

		Stories		
Stance	DW	AI	RUN	Total
1	3	6	4	13
	(6%)	(13%)	(8%)	(9%)
2	16	16	11	43
	(32%)	(34%)	(21%)	(29%)
3	9	9	9	27
	(18%)	(19%)	(18%)	(18%)
4	6	7	3	16
	(12%)	(15%)	(6%)	(11%)
5	16	9	24	49
	(32%)	(19%)	(47%)	(33%)

Note. DW = "The Dollar's Worth"; AI = "The Aztec Idol"; RUN = "The Runaway."

author's writing style. As shown in the example below and as contended by Rosenblatt (1982), many of the analyses of the literary works tended to be shallow responses.

> I didn't like the story at all. The story was too confusing. The story didn't tell anything much about the characters. The story didn't share the feelings of the characters. The story was quite boring and I didn't like it. The story didn't explain anything—never got to the point. When people write about stories they want to know a little about the characters and the story.
>
> Martha—"The Aztec Idol"

However, not all responses written from an efferent stance were superficial. Some students searched the stories in an attempt to determine the theme or what the author was trying to say. In the following response to the story, "The Runaway," Victoria grapples with that very question.

> The Runaway was a story that I really didn't understand. I have my own conclusion about what it meant but I don't think the author's idea is the same as what I think.
>
> I think the author is trying to say (this is my opinion) that home is the best place to be. And that just because things may not go your way or your parents are pressuring you. That your home is the best. Just because things look good on the outside doesn't mean they're good on the inside.
>
> This girl Marcie, thought her friend was so lucky, and that her mother didn't always bug her. But once she went over and found out how it really was she knew that a family's true love is always best. So in this story it was probably made for someone who wants to run away. To try and warn them. Because someone else has always got family problems worse than yours.
>
> This may be what the author had in mind, but it is kind of confusing unless you really sit down and think about it for a while.
>
> I think someone who is experiencing problems would enjoy and understand better than I do.

Rosenblatt (1978) has stressed that often readers fluctuate in their reading between an efferent and an aesthetic stance; such was also the case in 18% of the total responses in which no primary stance (rating 3) could be determined. In many cases, brevity made classification of a primary stance difficult, while in others (as found in the example below) definite efferent and aesthetic elements were mingled in the response.

> This story was very good. The author (Herma Werner) did a very good job in giving the characters' personality. Just by reading that story I hate Mr. Watts too. The only thing this story was lacking was a good description of this place. I pictured it out in the country where there isn't much traffic and there aren't many stores. But I don't know. For all I know it could be in New York City. (Except for when it said Mr. Watts went putting along the street at 10 mph.) Other than that, the story was excellent.
>
> Jim—"The Dollar's Worth"

In his response, Jim relates an efferent analysis of the character portrayal and the description of the setting in the story, "The Dollar's Worth." He substantiates his evaluative statements by giving us a glimpse of his evocation of the work, the images and feelings which emerged as he pictured the story experience in his mind. Jim's response serves as a reminder that the stance in the reported response may or may not be consistent with the stance taken during the actual reading event. Jim seems to be writing an efferent analysis of the story, based on a very aesthetic reading of the literary work.

Of the total responses, 44% fell at the aesthetic end of the continuum (ratings 4 and 5), with 33% exhibiting the most aesthetic stance (rating 5). Although all of the most aesthetic responses focused on relating the lived-through experience of the stories and the emotions, images, ideas, and associations which were called to mind during the reading and reliving of the story event, the responses themselves were as varied and unique as the individual children who wrote them. The responses below illustrate some of the elements which were found in the primarily aesthetic responses: imaging and picturing; relating associations and feelings evoked; and extending, hypothesizing, and retrospecting.

Imaging and picturing. Aesthetic responses often include a description of a visual image the reader pictured as reading or an account of how the reader imagines it would feel to be one of the characters. Some subjects identify with characters a great deal, as found in the responses of one subject, Amy. In her responses to all three stories, Amy chose to create her own literary works using the voice of the character in the story. The poem below was written in response to "The Dollar's Worth," a story of a young girl who encounters prejudice while working at a gas station.

> The penny-pinching old man in the beat-up old car,
> Drives in, for his dollar's worth of gas.
> His is cold, and mean,
> And his mouth is set in it's downturned frown.
> In disgust, I watch as his wrinkled old finger points,
> His eyes watching me, every step I take.
> I grew to hate him,
> And dread the days he'd come.
> But I learned that he had no-one.
> Almost no-one.
> And he insulted me, simply in a gesture of time gone by,
> and his forgotten past.
> He will be back tomorrow,
> In his beat-up old car,
> Watching me like a hawk,
> Pointing, frowning,
> Shooting Insults,
> And I will give him, his dollars
> worth of gas.

Amy's response illustrates the possibilities for imaginative reading and responding when students focus on living through the story experience. Her identification with the story character, Trish, resulted in her assuming Trish's role and feeling Trish's feelings. Other students identified with story characters also, but concentrated more on situations from their own lives which were similar to those experienced by the characters.

Relating associations and feelings evoked. "The Runaway" tells the story of a young girl who feels smothered by her parents' love and runs away to a friend's house, only to find that grass is not always greener on the other side. Forty-seven percent of the eighth-grade responses to this story were written from the most aesthetic stance (as compared to 19% of the responses to "The Aztec Idol" and 32% of the responses to "The Dollar's Worth"). The subject matter of this story seemed to encourage what Cochran-Smith (1984) calls life-to-text connections, in that many of the subjects related their own problems, or their fantasies about or experiences with running away, as illustrated in the responses below.

> I would like to be able to have a family who cares about me, and we could never be split up, and could talk out our family problems, and that I could always go somewhere called home. I feel sorry for Marcie that her and her mother couldn't work things out. Sometimes I think about ways I could runaway and how things would be for me like Marcie.
>
> David

> It was kinda of instering. I mean it was also stupid. I would have killed anybody if they bit me on the leg for no reason. And that chick is going to cry when she runs away! When I ran I was happy. Pluse going over to a friends house. NO WAY! Man ain't gonna help yo out none. Pluse She don't know what trouble is. I been living away from my house for 3½ year. For running, stealing, doing drugs, tresspassing, and vandalizing. She had no reason to go away from home. It was not realistic in some ways. Well there you have it. The End.
>
> Stan

For these students, the story hit close to home and they were able to relate definite associations which came to mind during reading. For David, the story offered a picture of a caring family life which he wished he could share. He saw the story as realistic, although different from his own experience. Stan, while giving evidence of an aesthetic experience by his willingness to relate the ideas and feelings which came to mind as he read, eventually rejected the reality of the story world because it did not conform to his own experience.

Hypothesizing, extending, and retrospecting. Some students, responding from the primarily aesthetic stance, extended the story line by hypothesizing background information or by continuing the stories to their own end. Others mused over what they were thinking as they read the story. In the following response to "The Dollar's Worth," Victoria explains a character's behavior by imagining what previous life experiences might have resulted in him being the way he was.

> This was a good story. It showed two different sides of people. It showed how the man really felt and how he had to act. Some people don't understand these two sides. You don't really have to know someone, just look at how they act. If someone acts hyper or shows off, they may not be doing it just because they want to, but probably because they want someone's attention.
>
> This man in the story, Mr. Watts, probably wasn't really a mean man, he just wanted someone to talk to or he was just defending himself so people wouldn't feel sorry for him. Maybe he didn't want anyone to know he was poor and lived with his sister because he might have felt ashamed.
>
> He also might not really have been prejudice against girls, but maybe something bad happened, that a girl did to him. He might have even wanted to marry some girl and they wouldn't.
>
> But you can't really be angry with people like that, because if you are a person you should know how people act.
>
> Victoria

Victoria has taken advantage of what Iser (1980) calls the gaps in the text, filling in the unknown history of a character to rationalize his behavior. In the next response to "The Aztec Idol," a story about two young boys who are conned by an old fisherman when they agree to buy a "secret" from him, Herbert goes beyond extending the story. Imagining himself in the boys' shoes, he reconstructs the personality and motivations of the old fisherman, remaking the character into one that he himself would have believed in and liked.

> If the man was as much as a jerk as the man in this story and if the secrets were so dumb I wouldn't have bought one. That man was so conceited and concerned about himself that I hated him. You could tell from the beginning by the way he taiked about welfare, it was the way he said it and what he said about it that made you know he was a jerk. A friendly old guy who enjoyed kids might have had a different approach for selling a secret. He would have been nicer and more interesting. Like an old man who loves to see kids steal peaches off his tree because he likes seeing the kids so joyful and right when the kids got just one peach he runs out of his house and shouts, "You rotten little brats! I'll get you for this!" Even though he really doesn't mean it, he just likes to give the kids a good time and make them feel important.

Like Amy who responded through poetry, Herbert included a creation of a new literary work, a vignette, as he constructed meaning from his literary experience. As well as creating original narrative forms, some students responding from the aesthetic stance referred to stories they had previously read or viewed.

> I think one part of the story goes along with the movie with Julie Andrews in it. I also think Marcie should [take] advantage of her parents "loving care." And get rid of that friend Hilda. I think that for an occupation she ought to go into poetry. If she would just try and except her parents "Loving Care" her life would be alot easier.
>
> Arthur

Arthur's reference to a Julie Andrews' movie gives an indication that he has made an intertextual connection as he read, but because he doesn't elaborate we are left wondering how or if the connection influenced the meaning he made from his evocation of "The Runaway."

Stance and Level of Personal Understanding

To determine the relationship between stance and level of understanding, separate analyses of variances (ANOVAs) were conducted for each story. For the purpose of the ANOVAs the variable stance was treated as an independent variable and converted to a three-level rating: (1) mostly or primarily efferent, (2) elements of both efferent and aesthetic, and (3) mostly or primarily aesthetic. Separate analyses of variance revealed stance to significantly affect the level of understanding reached for all three stories. Table 4 provides a summary of the ANOVA statistics and Table 5 lists the means and standard errors for each story and the post-hoc analyses. For all three stories, subjects focusing on the aesthetic stance were significantly more likely to interpret story events, to apply story events to life, and to draw generalizations about the world.

The relationship between stance and level of understanding proved to be fairly consistent across texts. For all stories, subjects who focused on the lived-through experience of the story had a significantly higher mean level of understanding than

Table 4

Summary of ANOVA Results for Each Story

Source	df	MS	*F*
		"The Dollar's Worth" ($n=50$)	
Stance	2	4.418	6.33**
Error	47	.698	
		"The Aztec Idol" ($n=47$)	
Stance	2	4.450	3.76*
Error	44	1.184	
		"The Runaway" ($n=51$)	
Stance	2	7.301	8.43***
Error	48	.866	

Note. Differences in *n* across stories due to subject absenteeism.
*$p<.05$. **$p<.01$. ***$p<.001$.

subjects who responded with no single primary stance. The aesthetic responses were also higher in level of understanding than the efferent responses and these differences were significant for two of the three stories. These findings indicate that the relationship between stance and level of understanding is not text specific.

CONCLUSIONS

The results of this study are significant in that they provide information as to the range and complexity of stances found in eighth-graders' responses and investigate the relationship between stance and level of understanding using junior high school

Table 5

Means and Standard Errors for Level of Understanding by Stance for Each Story

Stance Level	*n*	*M*	Std. Error
		"The Dollar's Worth"	
1	19	2.11_{ab}	.196
2	9	1.56_{a}	.278
3	22	2.68_{b}	.178
		"The Aztec Idol"	
1	22	1.68_{a}	.232
2	9	1.78_{a}	.363
3	16	2.63_{b}	.272
		"The Runaway"	
1	15	2.00_{a}	.240
2	9	2.11_{a}	.310
3	27	3.11_{b}	.179

Note. Means with different subscripts differ significantly at $p<.05$.

subjects. While the results of studies analyzing written responses are limited since a subject's reported response (and the identifiable stance and level of understanding therein) may not reflect the extent of his or her reading experience, the following conclusions are suggested.

Although the largest percentage of the total responses were written from the most aesthetic stance (33%), in view of the fact that the aesthetic stance is the focus deemed appropriate for the reading of literature (Rosenblatt, 1985) this seems regretfully low. The aesthetic stance, focusing on the evocation of the literary work, was associated with imaginative and creative responses where students found the literacy experience meaningful and relevant. If teachers intend literature to offer unique experiences through which students can live, find pleasure, and reach understandings about themselves and the world, the aesthetic stance needs to be supported and encouraged.

When students are asked to take an efferent approach to literature, for example in learning about literary elements such as plot, character development, and so forth, they should examine these elements in light of an original aesthetic experience of the literary work. Rosenblatt (1978) has underscored the importance of the reader involved in analyzing literature to ". . . keep his sense of . . . [his personal evocation] as vividly and fully in mind as possible" (p. 174). This is substantiated by the shallowness and analytical distance found in many of the responses written from the efferent stance in this study. In contrast, some of the responses at stance rating 3, which mingled an efferent analysis of the work with reports of the richness of the lived-through experience or even the lack of such an experience, were much more sophisticated and meaningful.

When examining the relationship between stance and level of personal understanding, responses written from the aesthetic stance were associated with significantly higher levels of understanding. In terms of the classroom these findings underscore the importance of fostering the aesthetic stance when students respond to literature. When teachers use ping-pong questioning techniques, where students parrot back responses to questions listed in the teacher's manual, students may assume the only appropriate focus when reading literature is to analyze the selection and retain important information. Although teachers may use such methods in an attempt to extend literal and inferential comprehension and to develop analytical thinking skills, inviting students to fully relive the literary experience could lead them to greater heights of understanding.

That the results were significant across story selections indicates that stance is a factor affecting response to literature regardless of literary text. While individual texts may vary in their potential for encouraging the aesthetic stance with certain age groups (for example, the story "The Runaway" elicited a large percentage of aesthetic responses focusing on the eighth-graders' associations with their life experiences), the occurrence of higher levels of personal understanding in responses written from the aesthetic stance was consistent across all three realistic short stories. Consequently, regardless of the literary works comprising the curriculum, teachers who want to encourage readers to find personal meaning in literature should consider aesthetic teaching strategies which promote and strengthen students' individual evocations. Such strategies would ideally (a) invite open responses, (b) give students time to respond, (c) provide opportunity to talk, (d) encourage personal and intertextual connections, and (e) recognize and encourage the focus of attention on the lived-through experience of the literary evocation.

This research provides empirical support for use of the aesthetic stance, which has long been encouraged in both theoretical and practical essays. Additional research is needed not only on the stance taken in children's responses, but also on the reader's stance during the actual reading event, using techniques such as protocol analysis. The stance children take in their response to informational texts as opposed to literary works is another area which needs investigation as well. By understanding how children focus their attention when reading and responding, we can aid them not only in the productive reading of all texts, but also in discovery of how to live, through, relate to, and learn from the limitless supply of worlds found in literature.

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JOINING THE DEBATE: RESEARCHERS AND READING EDUCATION CURRICULUM

Patrick Shannon
Penn State University

Literacy has long been considered a precondition of active citizenship in America. A literate populace would examine and discuss the issues of the day to make informed decisions concerning their future and that of this democracy. From Thomas Jefferson's *Bill for the More General Diffusion of Knowledge* (1787) to Joseph Mayer Rice's *Survey of the Public School System of the United States* (1893) to the recent spate of reports on the state of American schools (e.g., *A Nation at Risk*, 1983), literacy instruction has figured prominently in the curricula for public schools and has been the object of more study than any other school subject (Weintraub, 1982). Despite this attention, many argue that typical literacy lessons remain inadequate for preparing literate citizens who are able to meet the rapidly accelerating social, political, and industrial demands on an individual's literacy.

Although most agree that some change is necessary, there is much less agreement concerning what those changes should be and just whose conception of literacy and instruction should be validated at school. Many educational historians and philosophers (e.g., Cremin, 1961; Feinberg & Soltis, 1985; Kliebard, 1986; Prakash & Waks, 1985) agree that four interest groups continue to influence the American curriculum. Translated for literacy education, these groups include cultural literacy supporters, whole language proponents, teacher and school effectiveness enthusiasts, and critical literacy advocates. Each group bases its definitions and claims for its position on different sets of epistemological and pedagogical assumptions, and each offers a different future for schools and society. Knowledge of these differing assumptions and histories equips the individual to articulate his or her position more clearly, to see connections between and among apparently disparate events and statements, and to contribute more constructively to the debate by mediating between and among groups (Mitchell & Green, 1986). In this paper, I attempt to delineate the positions, histories, and potential futures of each group to shed light on the debate over literacy education in American schools and to report on a study of reading researchers' knowledge of same.

Cultural literacy supporters (e.g., Bennett, Bloom, and Hirsch) share assumptions with generalists often called "rationalists" (Prakash & Waks, 1985) or "humanists" (Kliebard, 1986). Within this position, literacy instruction should be organized according to the idea that schools' primary purpose is to develop students' intellect and their understanding of the best of the past through initiation into the world of high culture and academic disciplines. It is a conserving, not necessarily a conservative, approach

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to the literacy curriculum. In its strongest version (e.g., Peters, 1965), this group begins from the premise that "children start off in the position of barbarians outside the gates of the citadel of learning [school]," (p. 271) and the job of schooling is to make them rational human beings through the study of the classic literature of each discipline to develop students' "mind" in terms of factual knowledge and disciplined vision ("to think historically, not just know some history," p. 278).

Accordingly, rules of phonics and grammar are to be studied, not only for the linguistic benefits, but also because they help train students' analytic skills. Literary works of art should be studied to improve students' moral character and to initiate them into the traditions of Western Civilization. This position was the curriculum in American elementary and secondary schools until the early 20th century. Early challenges to its relevance were met with the *Report of the Committee of Fifteen on Elementary Education* (Harris, 1895). During the 1950s, the position (e.g., Bester's [1953] *Educational Wasteland*) was used to attack progressive education in American schools, and recently the position has enjoyed much attention through the work of Adler (1984) and Honig (1988).

Whole language proponents (e.g., Goodman, Harste, and Graves) share most assumptions with "self-actualizationists" (Prakash & Waks, 1985) or "developmentalists" (Kliebard, 1986) who have at least a 100-year history of challenging the traditional cultural literacy position. Beginning from a more optimistic view of human nature popularized by Rousseau (1762) in *Emile*, the group reverses the cultural literacy basic assumption—society corrupts childhood innocence, moving children away from their basic goodness—rather than civilizing them as the cultural literacy advocates insist. Consequently, literacy curricula should be organized around the child's natural development and struggle for self-knowledge and authenticity. Both teachers' and students' subjectivities become the criteria against which the curriculum is developed and the success of the program is judged.

That is, lessons to develop self-expression and communicative use of language move language from being an object of study in elementary schools to becoming a tool for students' learning about themselves and what interests them. Started by G. Stanley Hall (1883) and Francis Parker (1883), furthered by William Kilpatrick's Project Method (1918) and the Bureau for Educational Experiments, and formalized by provincial and national departments of education in other English speaking countries, the whole language position enjoys a widespread revival from the child centered days of progressive education.

Teacher and school effectiveness enthusiasts (e.g., Anderson, Pearson, and Beck) share assumptions with groups generally labeled "technical" (Prakash & Waks, 1985) or "social efficiency educators" (Kliebard, 1986). Following E. L. Thorndike's lead, this group maintains that the literacy curriculum should be organized through scientific experimentation concerning which elements of the reading process are most important, in what order the elements should be taught, which teaching methods yield the greatest amounts of learning in the least amount of time, and what materials are necessary to coordinate these scientifically induced parts of literacy lessons. Based on principles of scientific management from industry and research summarized by Huey (1908) and Gray (1919), this position has dominated American education since the fourth report of the Committee on the Economy of Time in Education (Horn, 1919).

Rejecting cultural literacy supporters' concern for the tradition and whole language proponents' interest in the subjective, this group bases its work on positivists' assumptions about reality and human nature. Of primary concern are the effects of experimentation and the standardization of instructional practice as expressed in the concluding statement of *Becoming a Nation of Readers* (Anderson, Hiebert, Scott, & Wilkerson, 1985): "America will become a nation of readers when verified practices of the best teachers in the best schools can be introduced throughout the country" (p. 120).

Critical literacy advocates (e.g., Berthoff, Shor, and Giroux) share assumptions generally with groups suggesting schooling for "social responsibility" (Prakash & Waks, 1985) and "social meliorism" (Kliebard, 1986). This group promotes school and literacy curricula which would help students to identify, understand, and oppose unjust relations and conditions which originate, promote, or maintain inequality among citizens. Relying on L. F. Ward's (1883) rejection of social Darwinism as an unscientific justification of social oppression and his assumption that schooling and literacy were the only ways to redistribute cultural capital equally among citizens, this group suggested that literacy and language become social tools with which students come to understand themselves—their history and culture; to define their relationship with the larger social, political, and economic structure; and to act on their new knowledge to work toward social justice. Championed early by the members of the Educational Frontier, they reject the guise of political "neutrality [of the other positions] with respect to the great issues, which agitate society because it is practically tantamount to giving support to the most powerful forces engaged in the contest" (Counts, 1932, p. 263).

As with the whole language position, critical literacy advocates propose the incidental study of one's language unless that language becomes a social marker for discrimination (Elsasser & Irvine, 1987). Under those circumstances then the discourse should be studied directly to show its value and logic. The critical literacy advocates seek a literacy curriculum that will enable students to use literacy as a tool for understanding their own histories and culture, their connections to the current social structure, and their abilities to act based on their new knowledge.

By examining the histories and basic assumptions of the four groups negotiating for control over literacy curricula in America, reading researchers can better understand the context in which teachers and they work. To determine whether reading researchers possess such knowledge, I sent a 16-item questionnaire to a random sample of reading researchers. The results were quite surprising. Very few reading researchers displayed a grasp of either the history or the theoretical links within the four positions on literacy education.

METHODS

Subjects

One hundred and twenty reading researchers (20% of the total) were randomly selected from the directory of the 1988 National Reading Conference Program as the subjects for this study. Their work had been selected by their peers as meriting presentation at what is generally considered the preeminent reading research conference in the United States. The work that they presented during the 1988 conference included experimental and naturalistic designs, reviews of research literature, and reports of on-going instructional projects. Each selected researcher studies or is employed at a university or college in the United States.

Materials

A 16-item questionnaire was mailed to each of the researchers. The items included progenitors (e.g., William Torrey Harris, G. Stanley Hall, E. L. Thorndike, and Lester Frank Ward), noted publications (e.g., *Educational Wasteland*, "The Project Method," *The Psychology and Pedagogy of Reading*, and *Dare the Schools Build a New Social Order*), important associations (e.g., Committee of 15 on Elementary Education, the Bureau of Educational Experiments, the Committee on the Economy of Time in Education, and the Educational Frontier), and modern advocates (e.g., E. D. Hirsch, Jerome Harste, Richard C. Anderson, and Ira Shor). The examples for the progenitor, document, and association sections were selected based upon the level of importance assigned them by historians (e.g., Cremin, 1961, and Kliebard, 1986) and philosophers (e.g., Prakash & Waks, 1985). I selected the modern advocates based on the popularity of recent publications. An earlier version of the questionnaire included Marietta Johnson and Caroline Pratt in the progenitor category and Diane Ravich and Maxine Greene in the modern advocates category; however, none of the 10 curriculum professors could identify Johnson or Pratt. I was told that to include women in any of the categories would lead to criticism that I used obscure items for the questionnaire. To avoid such criticism, but acknowledging that many women played important roles in each of the four curriculum histories, I limited my items to the above names.

Procedures and Data Analysis

Questionnaires were mailed to 120 reading researchers. Directions specified were: "In a brief statement please identify each of the following items and indicate theoretical connections between and among them, if any exist." Furthermore respondents were asked not to conduct any research on the items, but to "work from memory." Concerning scoring the completed questionnaires, a 1 was assigned if the respondent gave any reasonably specific identifier (e.g., *Animal Intelligence*, connectionism, or early experimentalist for Thorndike). Leaving an item blank, providing incorrect response, or offering a nonspecific answer was scored a zero. Scores for the historical identification were tallied for each group (from 0 to 4) and for knowledge of all four groups (from 0 to 16). To score the theoretical connections, a score of 3 was assigned if all four items in a group were connected, 2 if three were connected, 1 if two were connected, and 0 if no connections were made. Incorrect or overly simplistic (e.g., these are people) responses were not accepted as valid connections because of their lack of theoretical foundation. Highest possible total score was 12. Theoretical links were scored according to the descriptions offered by Cremin and Kliebard for each group and my assessment of modern advocates.

RESULTS

Sixty percent of the subjects (71 reading researchers) responded to the questionnaire. No one completed all 16 items, although each item had at least two respondents who identified it correctly. Total scores ranged from 3 to 13 with a mean of 5.3 (*SD* 1.68). Respondents identified items from the teacher and school effectiveness experimentalist position (scores ranged from 2 to 4 with a mean of 3.34) more often than they identified any of the others: cultural literacy (ranged from 1 to 4 with a mean of 1.6), whole language (ranged from 0 to 4 with a mean of 1.3), and critical literacy (ranged from 0 to 4 with a mean of 1.3). The modern advocates were the most often identified and often the only ones identified for a particular group. The most common response pattern (19 respondents) identified only the modern advocates and E. L. Thorndike.

Total scores for the connections ranged from 0 to 7 with a mean of 2.4 (*SD* 1.4). The most common response pattern (43 respondents) linked Richard Anderson with E. L. Thorndike as psychologists interested in the scientific study of reading and Jerome Harste and The Project Method suggesting that Harste advocates projects and theme lessons. Only the effectiveness/experimentalist position was connected completely (by two respondents only). Scores for the effectiveness/experimentalist position ranged from 0 to 3 with a mean of 1.7. Based almost totally on the connection of Harste with The Project Method, the whole language position scores ranged from 0 to 2 with a mean of 1.2. Only a few connections were made in the cultural literacy position (scores ranged from 0 to 2 with a mean of .4) and only two connections were made in the critical literacy position (scores ranged from 0 to 1 with a mean of .1). In short, few respondents were able to link the present with the past theoretically.

DISCUSSION

Although there are many limitations in this brief study (e.g., identification of items as an indication of knowledge of history, NRC membership as representative of the reading research community in general, links among historical items as a measure of theoretical knowledge), the results of the study suggest that reading researchers do not possess well-developed understandings of the histories and philosophies which underlie the four positions in the current debate concerning literacy education. Reading researchers' responses lie in stark contrast to those of 10 curriculum specialists from universities surrounding my institution whose total scores ranged from 10 to 16 with a mean of 12.4 (*SD* .8) for the historical items and from 7 to 12 with a mean of 8.8 (*SD* 1.4) for the theoretical links. Reading researchers' lopsided performance with its emphasis on the effectiveness/experimentalist position suggests a limited role within the current debate over literacy education, one more along the lines of Guthrie's (1987) policy driven research than Mitchell and Green's (1986) central role of mediator.

Of course, reading researchers' preference for the effectiveness/experimentalist position is understandable since it has been the dominant one in public schools and universities during most of this century. However, not having familiarity with the histories of reading education leaves reading researchers trapped in a present in which they must reinvent the rationales and philosophies for various counter proposals concerning what should or should not be happening during reading lessons and at schools. And they are easily fooled. For example, effectiveness/experimentalist reading researchers who supported Bennett's *What Works* (1985) did not recognize that his use of science furthered his cultural literacy philosophy rather than their own position (see Glass, 1987). That is, these researchers supported a document and position that works against their expressed position. As a counterexample, note former Secretary of Education Bennett's lack of enthusiasm for the effectiveness/experimentalist's *Becoming a Nation of Readers*.

The lack of historical and theoretical knowledge of the four alternative positions impedes reading researchers' abilities to recognize similarities among apparently disparate studies, events, and rhetoric. A case in point may be reading researchers' abstract criticism of cultural literacy as an attempt to homogenize American culture and literacy tastes while they perpetuate a type of cultural literacy among the members of the reading research community. Although reading researchers often claim diversity within their field of study, their foremost journals publish almost exclusively research from one paradigm of educational science (Shannon, 1989), their state of the art descriptions are based on the same type of research (e.g., *Becoming a Nation of Readers*), and even both positions in their great debate argue from that research base (see, e.g., Chall and Carbo in many issues of the 1989 *Phi Delta Kappan*). There appears to be an'unacknowledged literary canon for literacy education among reading researchers, one comprised almost entirely upon the effectiveness/experimentalist position. If the results of this study are representative, this canon may be unacknowledged simply because it is unrecognized by a community with historical amnesia.

If reading researchers seek to play a central role in the largely political debate concerning literacy education in America, they might start with analyses of the histories of reading education and the philosophical links between the past and the present which lies outside the dominant position in the reading researcher community. To fail to do so may relegate reading researchers to a practical irrelevance in the eyes of policymakers, teachers, and the public.

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THE NRC *YEARBOOKS* DATABASE

R. Scott Baldwin
University of Miami

John E. Readence
Louisiana State University

Jeanne Shay Schumm
University of Miami

John P. Konopak
Louisiana State University

The 1981 Delegates Assembly of the International Reading Association passed a resolution recognizing the importance of understanding the history of our profession and calling for an increase in historical research. Since then there have been a few summary publications that were designed to chronicle or critique the history of reading research or instruction (e.g., Moore, Readence, & Rickelman, 1983; Singer & Kingston, 1984; Stedman & Kaestle, 1987; Venezky, 1984). However, there is still much we do not know about our own professional roots.

One observation about reading research that has been gleaned from retrospection is its sporadic nature (Venezky, 1984). A topic will be investigated strenuously and then usurped by a more timely subject such that over time publications on specific topics are clustered together. For instance, the changing face of reading research was reflected in the pool of manuscripts submitted to the 1988 *NRC Yearbook* and illustrates this clustering pattern. There were approximately 20 manuscripts on writing and 20 manuscripts involving qualitative analyses. However, there was only one manuscript each on cloze and vocabulary and none on readability or schema theory. It appears that many of the "hot" topics of a few years ago, as well as many traditional subjects of reading research, simply were not in the manuscript pool. Is this topical bunching a superficial bandwagon effect, the result of sampling error, or does it reflect an evolution of research priorities and demographic changes in the NRC membership? We do not know. What we do know is that as a profession we need more historical perspective than we currently have. In our experience it is not unusual for aspiring professionals to be largely ignorant of the literature prior to 1970. They tend to assume that current articles with summarized, homogenized reviews of the past are sufficient. "Why should I read these articles by Arthur Gates? Anything of consequence he had to say is common knowledge now, so why go wading through all that boring 1920s prose?" (unidentified doctoral student). We believe that a knowledge of the past is fundamental to meeting current and future societal needs.

Given the *Yearbook*'s provocative and trend-predictive nature, it occurred to us that the NRC membership would be well served by a permanent database of the *NRC Yearbooks*. Our objective, therefore, was to make the past of our organization more accessible by creating a database designed to answer the following types of questions with respect to the National Reading Conference: (a) What major topics have emerged in reading research in the past 37 years? (b) What is the publication stability of each topic over time, for example, the cloze procedure? (c) How have research priorities changed over the decades? (d) When did naturalistic analyses first appear in the *NRC Yearbooks*? Who was the author of the first one? (e) What manuscripts on the topic of text structure, for example, have been published in all of the *Yearbooks*?

METHOD

Materials

PC-File: Version 5.0 (Button, 1990) was the database management system selected for this project. This software program operates with IBM compatible personal computers and is capable of performing complex searches with large databases. The sources of data were all manuscripts published in all 37 volumes of the *NRC Yearbook* (1952–1988) with the exception of 1952 and 1953, which we have been unable to obtain even through interlibrary loan. Excluded from the database were introductions to symposia and abstracts published in lieu of full articles.

Procedure

The basic framework for topic descriptors evolved from an examination of: (a) the categorization scheme used in the *Summary of Investigations Relating to Reading* (Weintraub, 1989), and (b) descriptors used to help editors identify reviewers' areas of expertise for *Reading Research Quarterly* and *Journal of Reading Behavior*. These topic descriptors were subcategorized under the following four major categories:

1. *Sociology*: The primary focus of the article dealt with cultural influences, censorship, power of the mass media, political implications of literacy, and other issues of power and authority or societal change.
2. *Psychology*: The primary focus of the article was in the traditional educational psychology mode of theoretical and/or empirical explorations of issues in cognition and learning.
3. *Physiology*: The primary focus of the article was on biological, genetic, or other physical aspects of literacy, (e.g., visual impairments, brain mapping, eye movement studies, etc.).
4. *Pedagogy*: The primary focus of the article was on program descriptions, explanations of classroom procedures, or studies with *an actual instructional component*.

Because the *Yearbooks* contain over 1,300 manuscripts, no one, all inclusive set of topic descriptors could be agreed upon in advance without forcing manuscripts into potentially inappropriate categories. We also wanted to use the authors' terminology of the day (e.g., the use of *retarded* readers in early literature versus our current use of *remedial* readers). For these reasons we began with a common set of about 100 topics and then adopted new topics as the review process progressed.

A worksheet was developed which included the following: (a) volume and pages, (b) space for up to five authors, (c) the category, (d) space for up to three topics, (e) space for up to three sets of subjects, (f) space for up to three kinds of materials, (g) space for two kinds of analyses, (h) the date, and (i) the title. The worksheet information comprised the data.

Training for the analysis of *NRC Yearbook* manuscripts for the four evaluators involved 10 *Yearbooks* which spanned the years 1954 to 1988. This was done deliberately to acquaint the evaluators with the terminology used in early *Yearbooks* as well as the expected diversity and potential complexity of manuscripts in more recent volumes. The mean percentage of agreement between pairs of evaluators was 86%, and differences in judgments were resolved in conference. Each evaluator was then randomly assigned to one of the first four *Yearbooks*. That assignment order was maintained as the remaining 36 *Yearbooks* were then numerically assigned. Thus, each evaluator analyzed 10 *Yearbooks*.

The following general rules were used in the evaluation of manuscripts:

1. *Categories*—only one category could be selected, and one had to be selected.
2. *Topics*—the author defined the topic, as stated previously; if the author failed to specify a topic, one from our list was used or, if necessary, created.
3. *Subjects*—primary school was defined as K–3, middle school as 4–8, and high school as 9–12; if there were more than three sets of subjects, those that best characterized the study were used; if the article was simply a discussion or description, subjects were *not* listed, but rather, this information was placed under *topics*.
4. *Materials*—only materials most pertinent to the study were listed; however, this grouping still proved the most unwieldy because of the idiosyncratic nature of experimental materials used.
5. *Analyses*—standard current statistical design, and paradigm terminology were used in lieu of any author terms.

Finally, to avoid trivializing the procedure, topic descriptors were assigned only when the evaluator believed them to be important in characterizing the manuscript. Therefore, some manuscripts were assigned three topic descriptors while others were assigned two or one.

The initial analysis resulted in a database of 557 unique topic descriptors. Some of the more unusual topics included: cohesive harmony analysis, communism, heart rate, hypnosis, kernel distance theory, racial stereotypes, and syzygy. We also discovered that in spite of our efforts to standardize the review process each of the reviewers demonstrated idiosyncracies which caused artificial clustering of topics in certain volumes. To make the database more consistent, we collapsed semantically similar categories and eliminated most of the topic descriptors that were used fewer than three times. Each volume was then reassigned to a pair of reviewers who reexamined each article and agreed upon its classification.

RESULTS AND DISCUSSION

The database consists of 1369 records, one for each article. The following record, Harry Singer's first *Yearbook* article, is typical:

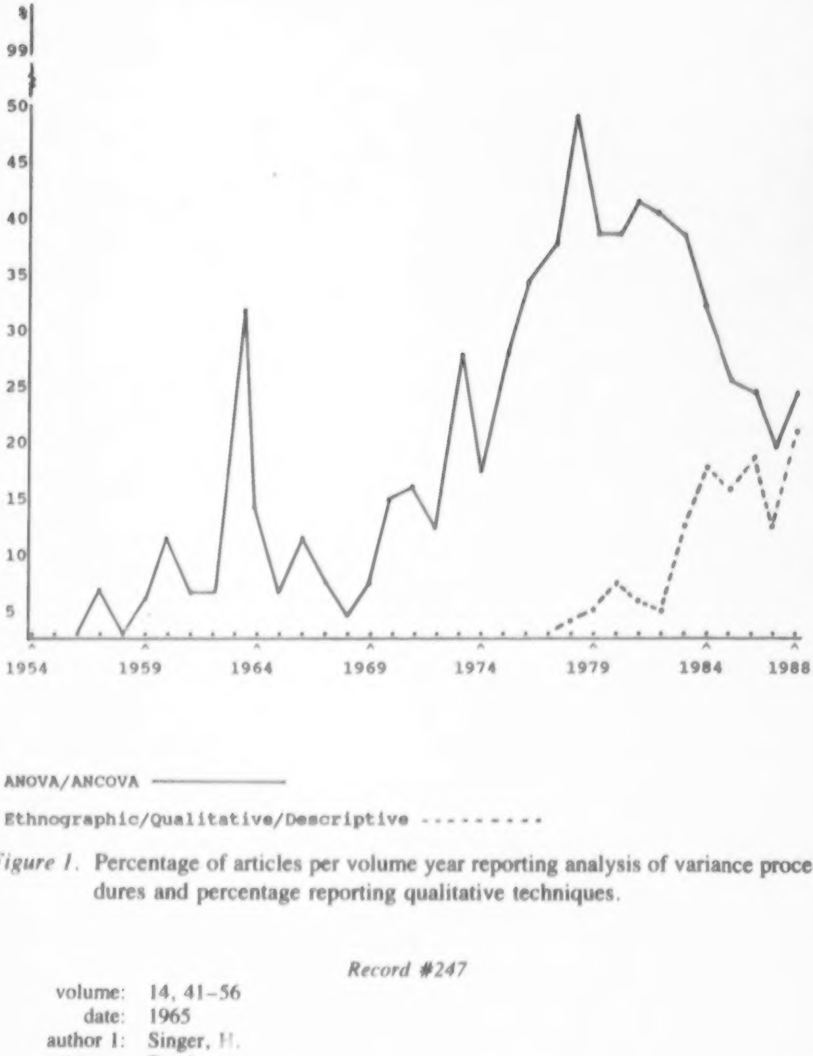

Figure 1. Percentage of articles per volume year reporting analysis of variance procedures and percentage reporting qualitative techniques.

Record #247

volume: 14, 41–56
date: 1965
author 1: Singer, H.
category: Psych
topic 1: substrata-factor theory
topic 2: theoretical models
topic 3: intelligence
analysis 1: theoretical
title: Substrata-factor patterns accompanying development in power of reading, elementary through college level

The percentage of articles that fell into the major categories were as follows: 59% psychology, 33% pedagogy, 6% physiology, and 2% sociology. There were 220 different topical descriptors (e.g., comprehension, gain scores, story grammar, col-

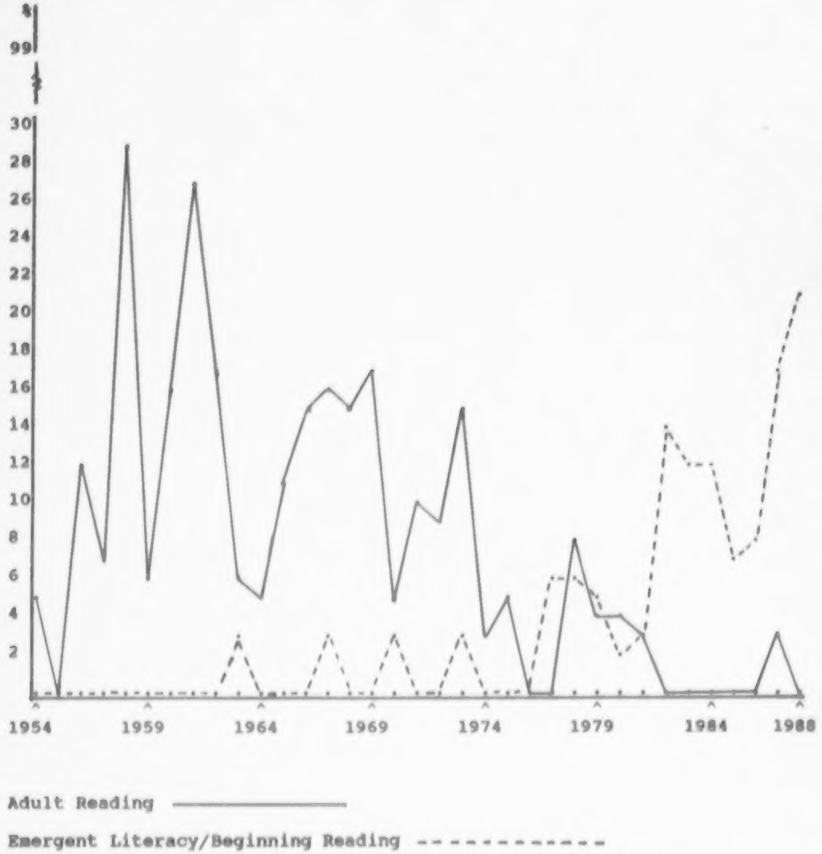

Figure 2. Percentage of articles per volume year devoted to adult reading and percentage devoted to emergent literacy or beginning reading.

lege reading) and 31 different analysis descriptors (e.g., ethnography, historical, MANOVA, review of literature).

There are tens of thousands of possible search combinations, and a comprehensive analysis of the *Yearbooks* is beyond the scope of this article. However, we can illustrate the search capabilities of the database. Figure 1 shows (a) the percentage of articles in each *Yearbook* using ANOVA or ANCOVA techniques, and (b) the percentage using qualitative methods. We chose to use percentages rather than actual numbers of articles because the number of manuscripts in the *Yearbooks* varies from a low of 14 articles in 1958 to a high of 79 articles in 1970, one of three double volume years. The first author to report analysis of variance techniques in the *Yearbook* was McDonald (1957). Lorentz and Coker (1978) were the first authors to report qualitative techniques. Figure 1 clearly indicates that analysis of variance techniques dominated the *Yearbooks* from the mid 1979s to the mid 1980s and that the decline in reported ANOVAs since then corresponds with the emergence of qualitative methods.

Figure 2 contrasts the topic *adult reading* with the combined topics of *emergent literacy* and *beginning reading*. Here the data seem to demonstrate the organization's waning interest in adult reading and its waxing interest in emergent literacy beginning in the 1970s and continuing through the 1980s.

With *PC-File* and the current database, users can conduct simple topical searches such as those illustrated in Figure 2. It is also possible to request bibliographic information based on any combination of variables. For example, the user could ask for a printout of all *NRC Yearbook* articles written by a given author on topics *X* or *Z* between years 1959 and 1974 where analysis procedures included ANOVA.

Our purpose in developing this database was to provide the NRC membership with a means of making the wisdom of the past more accessible to literacy researchers and students in the present. It is our intent to continue refining the database and adding to it with successive *Yearbooks*. In the meantime the database is available at no cost to any NRC member who is willing to send a self-addressed, stamped envelope and a formatted, blank, double sided, double density diskette to:

National Reading Conference
11 E. Hubbard, Suite 200
Chicago, IL 60611

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THE CURRICULAR EXPERIENCES OF AT-RISK FIRST GRADERS IN PROGRAMS DESIGNED TO PROMOTE SUCCESS

Melinda Lindsey
Boise State University

As defined by Slavin (1989), the term "at risk" refers to students whose intelligence is within normal limits but who are failing to achieve the basic skills necessary for success in school and in life. The practical definition includes low-achieving students who are eligible for compensatory or special education services. Such students may be served in one of three major types of programs: compensatory or other remedial programs such as Chapter I, special education programs, and general education programs.

Slavin, Madden, and Karweit (1989) have identified several themes common among effective programs for at-risk students. First, the quality of programs that are implemented matter more than the setting in which remedial or special education services are provided. Second, pullout programs are often poorly coordinated with the general education programs. Third, effective classroom and pullout programs for at-risk students accommodate individual needs while maximizing direct instruction. Fourth, teaching behaviors associated with outstanding achievement gains for students pulled out for special instruction tend to be the same as behaviors that are effective with all students. These behaviors involve active instruction in which the teacher transmits the content of lessons, rather than relying on worksheets, books, supplemental materials, and so forth (Crawford, 1989; Larrivee, 1989).

The issue of program coordination merits elaboration. Consistency between general education and special program is often referred to as congruence. Walp and Walmsley (1989) identify three types of congruence: procedural, instructional, and philosophical. Instructional incongruence is frequently observed between general education and special programs. Allington and Johnston (1989) report that conflicts arise in several areas. Strategies used to control text difficulty may differ; natural language may govern one program and orthographic regularity the other. The assumed hierarchy of learning may conflict when comprehension of whole text is emphasized in one setting and decoding is emphasized in the other. Instructional strategies may vary, as when learner-directed instruction dominates one setting and teacher-directed dominates the other. These differences often stem from philosophical incongruence, reflecting differences in beliefs about the nature of reading, reading disability, and the roles of teachers and students in instruction.

Few studies have critically examined specific programs as implemented with at-risk, low-achieving students. The purpose of this paper is to examine the curricular experiences of the low achievers. Of interest is the quality of the programs they participated in and the congruence between their classroom and pullout programs.

METHOD

Subjects

The study was conducted in a lower-middle class community located in the Pacific Northwest during the spring of 1987. The target classroom was a first/second grade combination taught by Mrs. Starr (a pseudonym). This teacher was highly regarded in her district as an effective teacher and an instructional leader. She was enthusiastic about the program she implemented and committed to making it work. In addition, she was particularly interested in its application with low-achieving children. She requested that at-risk students be assigned to her classroom and insisted on reducing the time spent by eligible students in pullout programs.

For this investigation three first graders were nominated as low achievers by Mrs. Starr. John spent the entire instructional day in Mrs. Starr's classroom. Ginny was pulled out of the classroom 15 minutes daily to receive remedial help in reading comprehension in the Chapter I program. Michael was pulled out of the classroom 25 minutes daily to receive help in reading comprehension and word identification strategies from the special education teacher in a resource room setting.

Procedures

The reading programs implemented for John, Ginny, and Michael were investigated primarily through classroom observation. All observations were made by the researcher, who assumed the role of unobtrusive nonparticipant. Informal conversations with teachers, summarized in journal entries, provided additional insight into students' experiences. Children's written work was also examined. Notations about the nature of the task and the quality of students' responses were made.

Each of the three low achievers was observed on a different day. During the day's observation the researcher observed all instructional events that occurred during designated reading periods, in both Mrs. Starr's classroom and pullout programs. A protocol was generated on the basis of continuous observation of the actions of the student.

Data Analysis

The observation notes were reviewed after the completion of the study. Fidelity of program implementation was described by comparing recommendations from program guides with notations relating to instructional events; these comparisons were triangulated with informal conversations with teachers. Student responses were described by comparing notations of students' actions with expected student responses, as outlined in program guides. These comparisons were triangulated with notations relating to examinations of student work. Time notations for teacher-student interactions were classified as lasting 15 seconds or less, 16 to 30 seconds, 31 seconds to 1 minute, 2 to 3 minutes, and continuous (sustained interactions lasting more than 3 minutes).

Materials

The Success in Reading and Writing (Success) program. The *Success* program was the major basis of instruction in Mrs. Starr's classroom. *Success* is an integrated reading and language arts instruction program designed for students in kindergarten through sixth grades. Key components include use of students' own language and everyday reading materials, no ability grouping, and daily composition and recreational reading.

The instructional program in first grade (Adams, 1978) consists of five modules, each intended to last 30 minutes. Three are of interest in this investigation. What follows is a summary of their intended purposes and expected student responses, along with a description of materials observed in use.

The purpose of the "Phonics/Spelling" module is to teach students the "strategies necessary to decode with comprehension any word in the language they wish to read" (Adams, 1978, p. 21). The teacher begins by announcing a focus for the lesson (e.g., "words with *sk*, two syllables"). Students are expected to individually volunteer words and sentences containing the focal elements (e.g., "basket"; "Tammy went skating"), answer teacher questions about word identification or vocabulary, and orally read the resulting chart in unison. Students independently copy the chart and/or write their own sentences containing the focal element. At this time the teacher circulates and asks individuals to orally read their texts and discusses word identification elements. Michael was pulled out of this component for special services; charts produced during observations of John and Ginny illustrate the typical text produced by the group:

"Singing is fun," said S______.
The movie had a happy ending.
Cindi Lauper is a singer.
B______ is mending her sock.
The movie just ended.
I am ready.

My uncle is funny.
K______ is funny.
You are running.
People are digging under the dirt.
"Clowns are running," said K______.
On Sunday I go to my friend's house and give his uncle underdogs on the swing.

The purpose of the "Recreational Reading" module is "to establish student reading for enjoyment, as well as for information" (Adams, 1978, p. 47). Students are expected to select and silently read fiction and nonfiction library-type books, without interruption or restriction. During a representative observation of Ginny, students selected class books, comic books (e.g., "Yosemite Sam"), basal readers, magazines (e.g., *National Geographic*), informational books (e.g., *Life in Ponds and Streams*), and story books (e.g., *Stone Soup*). The program also recommends that teachers schedule approximately six conferences per day with individual students, cycling through everyone in the class at least once a week. The focus of the conferences at the first-grade level is initially on word identification strategies; later the conferences are to involve "sharing" of the books that the student and teacher are each reading.

"Patterning," a module designed to last the first half of the school year, is intended primarily to emphasize identical letter combination patterns in various positions in words. The strategy for obtaining instructional material is the same as in "Phonics/Spelling," with the exception that students generate only words, not sentences. At the time of the study, this module had been completed and was replaced with an alternative reading activity. The time slot is intended by the program author to be used to extend the recreational reading module another 30 minutes.

Pullout programs. Instructional materials and methods varied from child to child. Ginny was expected to read words and sentences orally, mark worksheet answers, and answer the teacher's questions. Four comprehension worksheets (focusing on the skills of identifying rhyming words, locating details, making inferences, and visual discrimination of phrases) from the district's adopted basal series were used. Michael was expected to orally blend consonant + /a/ with final consonants, sound out phonetically regular *cvc* /a/ words, pronounce sight words, and read passages containing words with /d/. Materials included worksheets and passages taken from phonetically controlled supplemental programs and teacher-made flashcards.

RESULTS

Fidelity of Implementation

Mrs. Starr was faithful in her implementation of the "Phonics/Spelling" module. The two remaining components were substantially altered.

Recreational Reading module. Mrs. Starr modified the module to eliminate recommended conferences because she believed that children's silent reading should not be interrupted by any "distraction," including interactions with the teacher. The single academic interaction observed during this module was initiated by the student.

Patterning module. This component was not replaced by extending "Recreational Reading" another 30 minutes, as recommended. Instead, Mrs. Starr established small, homogeneous reading groups and placed them in the district adopted basal program for two reasons. First, the district had mandated that the *Success* teachers administer the basal unit tests as a measure of program effectiveness, and Mrs. Starr felt that students needed experience with basal instructional tasks to perform successfully on these tests. Second, she wanted students to be familiar with basal instruction in case students were placed in classrooms using basal approaches rather than *Success* the following year.

Groups worked under her direction in typical basal procedures. John, for example, worked with one other student; they took turns reading word lists and passages orally and answering literal and inferential questions. Because only 30 minutes was available for basal instruction, students did not participate in teacher-directed groups on a daily basis. When not in groups, students were expected to read in a basal reader independently or to complete worksheet assignments. The only difference from traditional basal procedures was that students were free to select any of the basal readers available in the classroom, which included several grade levels from several different programs. Michael, for example, completed a *Weekly Reader* written activity and a short vowel ditto, then read out of his own level of the district adopted basal reader. Ginny, who was pulled out of this activity for 15 minutes, returned from Chapter I, selected readers from two different programs, and read them silently for the remainder of the period.

Student Responses

The three low performers generally tried to do what was expected of them, particularly in the basal replacement for "Patterning" and in their pullout programs. Patterns of deviations from expectations were observed in two major *Success* modules, however.

Phonics/Spelling module. Deviations by the two students who participated in this module, John and Ginny, could be found in two of the expected behaviors. Students were expected to volunteer examples of the focal element, though the level of expectation was not high. Mrs. Starr encouraged and praised contributions but did not hold individuals accountable if they chose not to volunteer. Ginny did not attempt to contribute; John raised his hand to volunteer a word only once, in a tentative manner, but he quickly lowered his hand before the teacher noticed that it had been raised.

During the independent seatwork task, *Success* students had the option of generating their own sentences rather than copying the chart. The level of expectation for choosing to generate novel sentences was not high; Mrs. Starr did not respond negatively to students who chose to copy. Neither Ginny nor John was observed to generate novel text.

Recreational Reading module. Students were expected to silently read text. Only Ginny engaged in actual reading of text; the other two turned pages rapidly and appeared to look at pictures rather than process text. John and Michael had difficulty sustaining even this limited interaction with books over the entire period. Both were frequently engaged in other behaviors such as talking to other children and walking around the room. In one telling incident, John was observed to turn pages while his head was turned away from the book.

Teacher-Student Interactions

Success program. During the two *Success* modules, individual contacts that were for academic purposes tended to be both infrequent and brief in duration.

John had three interactions. Of these, two involved reading sentences orally during "Phonics/Spelling"; one interaction lasted 15 seconds or less, the other lasted 1 minute. The teacher responded by announcing the next task in one instance and praising him in the other. A final contact, lasting 15 seconds or less, was initiated by John during "Recreational Reading." He showed the teacher a word containing a suffix in his library book; corrective feedback was provided.

Ginny's three interactions occurred during "Phonics/Spelling." Each lasted 15 seconds or less and involved reading a sentence orally. The teacher responded to each with praise.

Michael was pulled out of "Phonics/Spelling" for special services. Neither he nor Ginny had any academic interactions with the teacher during "Recreational Reading."

Basal group. John's experience in the teacher-directed small group activity lasted 17 minutes and consisted of continuous interactions among the teacher and the two students. There were high rates of successful student responding with immediate feedback.

During the "free reading" activity of the basal period, Ginny sought and received teacher assistance in pronouncing a word on two occasions. Each interaction lasted 15 seconds or less.

Michael had three academic interactions with the teacher during the "free reading" activity, all initiated by Mrs. Starr, and all with the intent of instructing rather than monitoring. In the briefest interaction, lasting 1 minute, the teacher reviewed short *i* and short *e* vowel sounds and provided guided practice. The two longer ones (2–3 minutes) involved identifying words in his self-chosen basal reader and sequencing events in the story; in these instances the teacher worked simultaneously with another student who was reading the same book. She provided both input and corrective feedback.

Pullout programs. Both Ginny and Michael worked with an adult on an individual basis, Ginny for 10 minutes and Michael for 24 minutes. This time was observed to involve intensive, continuous interactions between teacher and student, with high levels of student responding paired with teacher feedback or explanation.

DISCUSSION

Quality of the Classroom Curriculum

Portions of the core classroom program are judged to be of poor quality in both student responses and teacher-student interactions. It is likely that this negatively affected the achievement of the at-risk students.

Student responses. The student response that is most problematic in *Success* is generating examples of the focal element. The rationale for student-generated text is that vocabulary derived from students' own oral language is more meaningful. However, it is hard to argue that the resulting text ("My uncle is funny," etc.) is qualitatively superior to current basal reader passages. The sentences are not connected in meaning; as a result, they violate tacit expectations for text structure. Further, the task of generating examples of the focal element is both contrived and difficult. It is substantially more difficult than either decoding the same words generated by another author or generating a message of the individual's own choosing, without constraint.

A second student response that may have negatively affected student achievement is copying. The common criticism of basal programs is their excessive and inappropriate reliance on repetitive, meaningless worksheet tasks. Yet copying requires even less cognitive effort than completing matching or fill-in-the-blank exercises on worksheets. Copying neither guarantees that students think about the decoding and encoding elements of the text, nor entails purposeful, student-initiated communication with others.

A third problematic response is silent reading. One characteristic of the differential instruction typically provided to low performers in basal programs is the emphasis on oral reading at the expense of silent reading (Allington, 1983; Hiebert, 1983). *Success* appears to avoid this in allocating 30 minutes of daily silent reading. Further, Mrs. Starr went to considerable lengths to provide a variety of appealing materials, including an abundance of excellent children's literature. Yet two of the three low achievers had significant difficulty actually processing text.

One factor contributing to the low text processing is the practice of allowing students to choose whatever they wished to read. Although this may positively affect student attitudes toward reading, it may also result in a poor match between the demands of the text and the very limited decoding skills of these beginning readers. A more important factor was Mrs. Starr's decision to eliminate individual conferences. Conferences were her sole opportunity to systematically guide students in decoding and comprehending connected text written by mature authors. Eliminating them reduced her access to information that would enable her to judge the match between student and text and to facilitate text processing. This is especially alarming because two of the three children received special services *because of* their problems in comprehension.

"Recreational Reading" is an example of individualized instruction, in the sense that the use of different materials is thought to permit each student to progress at a pace suited to his or her abilities and interests. This instructional approach, as actually implemented, has been criticized because the responsibility for teaching is shifted from the teacher to the student, and the responsibility for delivering content is shifted from the teacher to the instructional materials (Good & Brophy, 1987). At-risk students, particularly at the first-grade level, may not be able to independently assume this responsibility.

In sum, generating examples of the focal element and copying are qualitatively poor tasks. They fail to provide direct opportunities to engage in meaningful reading and writing. Silent reading is not an inherently poor task, but without teacher involvement, actual student responses may result in marginal experiences in literacy development.

Teacher-student interactions. A major feature of *Success* is that teachers are able to work with students on a one-to-one basis, following whole group instruction. The purpose is to enable the teacher to address individual needs through review and instruction. Interactions are intended to be more on the order of "mini-conferences" than the typical monitoring activities of teachers using basal programs.

Yet, as implemented, teacher-student interactions that were for academic purposes were infrequent, brief, and entailed only incidental responses to a particular task at hand. Sustained interactions (2–3 minutes or longer) occurred in Mrs. Starr's classroom only in the context of the basal replacement, not in *Success*. The basal interactions contrast with *Success* both in length and in the teacher's interaction to demonstrate and to explain, as well as to monitor and provide feedback. It is unlikely that the individual student contacts in *Success* modules were adequate for systematically tracking and accommodating the special needs of at-risk students. This suggests that a key area for continued investigation is the quantity and quality of individual teacher-student interactions in all programs.

These responses and interactions underscore two related points. First, as we investigate beginning reading instruction, we must critically evaluate the nature of student responses—both expected and, especially, actual. Not all that passes under the name of a particular approach to instruction is necessarily of value. Second, we must look beyond the mere presence of particular types of instructional materials. We must examine whether and how teachers assist students in using the materials in appropriate, meaningful ways.

Incompatibility of Instruction

The experiences of Ginny and Michael in their pullout settings appear to be qualitatively different from their *Success* classroom experiences. Text difficulty was controlled by orthographic features rather than by meaning; instruction was teacher-directed rather than learner-controlled; materials were teacher-selected rather than student-selected or student-generated; expected student responses differed; student-teacher interactions were sustained longer.

Two points can be made about this incongruence. First, the core curricula of the pullout programs were not qualitatively inferior on every point of comparison. For example, although the instructional materials did not provide the same quality of narrative text that library books might provide, teacher guidance resulted in greater depth of processing than occurred in *Success*. The highly interactive instruction that is characteristic of effective practices for at-risk children seems a more critical factor than availability of instructional materials alone. Before pullout programs can be made to be consistent with classroom programs, it is necessary first to ensure that the classroom practices are qualitatively justifiable.

Second, the apparent incompatibility in methods and materials for *Success* low achievers was not limited to those who participated in pullout programs. Although he received no special services, John's experience in the classroom basal activity resembled Ginny's and Michael's experiences in their pullout programs more than it did his other experiences in the classroom. Thus any incompatibility between curricula was experienced *within* the *Success* classroom as well as *between* the *Success* classroom and the pullout programs.

The decision to establish a basal reading activity on the surface appears defensible in terms of the pragmatics of running classrooms, the politics of innovative change, and the effective instructional practice of overlapping curriculum with test content (Crawford, 1989). The irony is that Mrs. Starr had adopted *Success* because she rejected basal readers philosophically. In retrospect, it seems possible that Mrs. Starr implemented an activity that was incongruent with the rest of her program because she had not yet achieved a coherent philosophy.

If this speculation is verified, it suggests that achieving philosophical congruence is an issue for the individual classroom teacher as well as for the several teachers who must collaborate in serving children. A philosophy is the possession of the individual rather than the program she/he implements; it is not necessarily coherent, fixed, or well-articulated. Attention should be paid to teacher belief systems, for it is the teacher's interpretation of the curriculum rather than the curriculum itself that is presented to students (Brophy, 1982; Schmidt & Buchmann, 1983). We should inquire into the teacher's philosophy of reading, or reading disability, and of the roles of teachers and students in learning.

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TEACHERS' DEVELOPING INSIGHTS ABOUT THE USE OF CHILDREN'S LITERATURE FOR LANGUAGE AND LITERACY GROWTH

James V. Hoffman, Nancy L. Roser, Jennifer Battle, Cindy Farest, and Mary Ellen Isaacs
University of Texas at Austin

Both recent statewide literature initiatives and the pressure for change in literacy curricula at local levels have served to encourage the use of children's literature in the teaching of reading. For the most part, the sweeping nature of reforms has been due to a grassroots movement among educators eager to ensure that their teaching draws upon quality materials that support children's desires to read (Cullinan, 1989). However, as with any innovation within a profession, practitioners command widely divergent degrees of knowledge, interest, and commitment to the innovation's precepts. Some may be swept along by the reform movement, feeling little commitment to its tenets, as well as uncertainty as to how to implement change. The purpose of this study was to examine such a group of teachers' developing understanding of teaching literacy while they were incorporating experiences with children's literature into their classroom reading programs.

BACKGROUND

Data for this study were collected as part of a larger program effort titled Language to Literacy (LtL), a curricular project designed to enhance teachers' skills and strategies for incorporating literature into their reading/language arts program (Roser, Hoffman, & Farest, 1990). Throughout the project (planned cooperatively by school district and university personnel), volunteer teachers worked to make the content of their daily storytime more substantive through the use of planned literature units. These instructional units provided for children's comparative views of themes, patterns, and relationships across books (Moss, 1984). In addition, the restructuring of storytime provided opportunities for children's responses to literature through discussion, art, drama, shared writing, and extensions across the curriculum.

RATIONALE

Three research perspectives supported the study's design: The first is drawn from the interpretive or qualitative research tradition in anthropology and, more recently, education. In contrast to the positivist/behaviorist approach, the interpretive perspective emphasizes the meanings of actions as derived from the actors' points of view—the meanings participants themselves construct around a particular set of events (Erickson, 1986). Although the focus for interpretive classroom studies may be on either the teachers or the students, this investigation looked specifically at teachers' insights and interpretations of the effects of curricular change.

The second research perspective relates to the concept of "academic work" as central to understanding classroom teaching and learning. According to Doyle (1983), the teacher's role in instruction consists of selecting (or creating) academic work to be introduced into the classroom, presenting this work to the students along with information related to the task structure, sustaining students' efforts to complete this work, and evaluating students' performance. In this study, the "academic work" of storytime was examined as it assumed a more central and critical position in the literacy curriculum.

The third perspective draws from recent research in teacher cognition (i.e., Clark & Peterson, 1986). Available evidence suggests that teacher understanding is a key factor in curricular change (e.g., Lanier & Little, 1986), as are teacher concerns (Hall, 1976). This study explored the nature of and changes in teachers' knowledge of learners, content, curriculum and pedagogy (Shulman, 1986), as well as documented the evolution of their concerns as they incorporated more children's literature into their classrooms.

METHOD

Participants

The LtL project involved all kindergarten, first-, and second-grade teachers ($N = 78$) from six elementary schools in a large Southwestern school district: 85% of the participating teachers were Hispanic, 96% were female, and all were volunteers. Over 90% of their students were Hispanic, the majority of whom were classified as Limited English Proficiency (LEP) and placed in bilingual classrooms. All participating schools ranked in the lowest quartile of Texas schools on the state-mandated minimum skills test, and two of the schools ranked in the lowest 5%.

Data Collection and Analysis

Questionnaire data were collected as part of the initial inservice for the LtL program. The questionnaires gathered descriptions of teachers' beliefs about literacy instruction, as well as descriptions of their current practices. Other items explored teachers' Stages of Concern (Hall, 1976) about implementation of the project.

In addition to the data collected during the initial inservice, two other sets of data were collected. The first related to teachers' success with implementing the project in their classrooms, as gauged by the Levels of Use (LoU) construct from the Concerns Based Adoption Model (Hall, 1976).

The second set of data, and the one most relevant to the current report, consisted of a series of interviews conducted during the course of the project and at its conclusion. To both corroborate and elaborate the teachers' perceptions, concerns, and degree of implementation, members of the research team visited classrooms on a biweekly basis and met bimonthly with grade-level teams to discuss effective practices and respond to concerns.

Two questions guided the collection and analyses of these data: (a) How did teachers believe reading/language arts instruction was changing in their classrooms? (b) What were teacher participants' insights into their own learning as well as their students' learning as a result of using literature units in storytime? A description of the collection, analysis, and interpretation of each data source is presented in relation to these questions.

RESULTS

How Did Reading/Language Arts Instruction Change?

Self-reports, direct observations, and artifacts (audiotapes, written records) collected prior to, during, and at the conclusion of the LtL project all suggested significant instructional changes. In one analysis to verify change, descriptive phrases were extracted from the pre- and post-questionnaires so that teachers' perceptions of their typical instruction in reading/language arts could be compared. These phrases were grouped and categorized under relevant topical headings (see Table 1). To show change, each teacher's descriptive phrases were coded using the teacher's identifying number. By examining Table 1, it is possible to track individual teacher's changing perceptions of instruction, as well as to gain an impression of generalized changes across all participants.

Certain activities appeared to be unaffected by the introduction of the literature sharing program (e.g., spelling instruction). Although some activities showed slight decreases in the number of "mentionings" by teachers (handwriting instruction, basal reading, reading group instruction), others showed more marked decreases (e.g., phonics instruction, vocabulary, workbooks, readiness skills, and ESL). Increases were notable in those activities which were aspects of the literature sharing innovation (story reading, book browsing, and listening stations). In addition, new activities appeared in the post-questionnaires that had not been a part of teachers' earlier descriptions of their classrooms. These included writing and drawing in response to literature and engaging in journal writing and writing workshops.

Teacher change was viewed from at least four other vantage points: (a) comparison of pre- and post-stated concerns regarding implementation of the project, (b) analysis of audiotapes of teachers' storytime, gathered on a biweekly basis, (c) inspection of individual and collective teacher interviews, and (d) observations of program implementation by a research project associate.

Analysis of teachers' concerns about using literature at the start of the program revealed a primary emphasis on task concerns with some related personal concerns as well (e.g., How will participation affect my evaluations by the principal?). The predominant task concerns centered on finding time and classroom space for the program. At the end of 18 months, personal concerns had diminished, but task con-

Table 1

*Reading Instruction Pre and Post LtL Implementation**

Aspects of Instruction	Pre-Questionnaire	Post-Questionnaire	Aspects of Instruction	Pre-Questionnaire	Post-Questionnaire
Spelling	5, 6, 11, 12, 13, 14, 19, 24, 25, 26, 32, 36, 40	5, 6, 8, 11, 13, 14, 19, 20, 21, 32, 39, 41	Oral Reading	1, 5, 8, 9, 15, 37, 40, 41	2, 3, 11, 15, 20, 30, 32, 34, 36, 40
Phonics	1, 2, 3, 7, 8, 9, 11, 14, 15, 16, 17, 23, 26, 29, 32, 34, 35, 39, 41, 42	1, 2, 6, 10, 21, 29, 34	Independent Reading	5, 20, 23, 29, 34, 36	2, 3, 11, 15, 20, 30, 36, 40
Handwriting	2, 19, 20, 26, 32, 37	1, 12, 32, 41	ESL	3, 4, 6, 7, 8, 12, 14, 16, 19, 21, 22, 23, 24, 25, 26, 29, 30, 35, 37, 39, 40, 42	6, 8, 14, 19, 20, 21, 23, 29, 37, 39
Language Experience	3	3, 26	Science Exploration		2
Vocabulary	2, 5, 10, 13, 14, 15, 17, 21, 37	5, 6, 14	Language to Literacy		16, 17, 20, 21, 24, 25, 37, 40
Basal Reading	3, 4, 6, 7, 8, 17, 19, 23	2, 4, 13, 26, 29, 32	Story Reading	1, 2, 3, 6, 8, 9, 11, 20, 23, 25, 34, 36, 39, 42	1, 3, 7, 8, 10, 14, 15, 16, 17, 19, 23, 25, 29, 32, 34, 37, 39, 40, 42

Reading Groups	4, 10, 12, 13, 16, 20, 24, 25, 26, 30, 32, 34, 35, 36, 37, 39, 40, 41	12, 13, 14, 15, 17, 19, 21, 24, 25, 30, 36, 37, 41, 42	Library Center/ Browsing Area	4, 7, 12, 13, 14, 16	1, 2, 9, 10, 11, 13, 26, 34, 40
Workbooks	5, 9, 14, 23, 34, 36, 41, 42	8, 34, 40	Listening Station	4, 10, 16	1, 2, 7, 21, 23, 40
Worksheets	10, 13, 14, 36, 42	13, 34	Story Talk	8, 42	2, 8, 39, 42
Reading Skills	8, 10, 13, 14, 15, 16, 21, 39, 41	2, 4, 10	Big Books		34, 35
Painting, Drawing	8, 29	2, 25, 34	Writing in Response to Literature		4, 6, 8, 11, 13, 14, 16, 17, 25, 36
Movies, Filmstrips	16, 34	8	Art in Response to Literature		9, 11, 14, 24, 29, 35
Drama	6, 9, 23, 24, 34, 39	2, 6, 16, 19	Dictation		9, 10
Show and Tell	19, 20, 41	2, 34	Journal Writing		6, 10
Language Play	2, 8, 23, 24, 34, 42	6, 29, 34	Story Writing/Writing Center	6, 8, 19, 25, 41	1, 4, 6, 13, 16, 19, 20, 21, 32, 37, 41

*Numerical data on this table reflect teacher identification numbers.

cerns were still in evidence. Again, the primary task concern was one related to time. Some concerns about impact were also represented in these follow-up responses.

Teachers' concerns about finding time for sharing literature are interesting when considered along with the data on success of program implementation. From analyses of a sample of audiotaped storytimes, it was determined that the actual time spent with literature nearly doubled over the course of the project. Initially, storytime averaged 15 minutes per day. By the end of the project, books were shared and responded to on an average of 29 minutes per day. (For a more detailed discussion of these data, see Hoffman, Roser, & Farest, 1988.) In addition, interviews with teachers (structured around the LoU framework), as well as their self-reports collected at the end of the project, confirmed successful implementation of the critical features of the literature sharing component by over 95% of the participants. On a scale of 1 to 5, with a 1 indicating no success with implementation and a 5 indicating a high degree of success, the mean rating for success with "setting up a book center" was 4.58, whereas the perceived success rating for reading daily from books in the unit was 4.32, indicating that teachers felt they had successfully implemented the two program features they had described as their greatest concerns (space and time).

These self-reports of successful implementation were confirmed on the basis of first-hand observations of classrooms during the regularly scheduled site visits of the research team. In addition, classroom visits validated the characterization of teacher change. For example, in contrast with the findings from initial "walk-throughs" of all targeted classrooms, in which few tradebooks were in evidence, later visits revealed the significant collections, displays, and artifacts of a literature-enhanced program.

These multiple sources of data, taken as a whole, suggest that participating teachers were successful in making changes in their instructional programs. Specifically, they seemed to be successful in restructuring the task of storytime in their classrooms.

What Were Teachers' Insights Into Their Own Learning and Their Students' Learning?

As part of a debriefing interview at the end of the LtL project, teachers were asked to respond in writing to the questions: What do you feel you learned and what do you feel your students learned as a result of sharing literature in units? The teachers' responses were subjected to a content analysis: Each response was analyzed for its constituent propositions. A total of 93 propositions were identified related to teacher learning, and 191 propositions related to student learning. The average number of propositions per teacher was 2.8. These propositions were grouped based on similar foci, using the constant comparison method described by Goetz and LeCompte (1984). Each grouping was then assigned a topical heading or theme based on the content of the responses. No preexisting categories were used. To establish interrater reliability, 12 graduate students and professors of reading were asked to categorize a random sample of these propositions into the category structures that emerged from the data. Reliability was calculated at over 80% for both category structures (teacher-learning and student-learning). Topical categories were then rank-ordered from those receiving the most attention to those receiving the least.

Teachers' insights into their own learning. Five major categories of teacher learning emerged from the teachers' perceptions of their own growth: (a) Program/Curricu-

Table 2

Teachers' Perceptions of Their Own Learning

Teacher Insights	Explanation	Sample Responses
Program/Curricular Insights	Insights into the place of literature in the classroom	"It reaffirms the importance of using books with young children as starting points for other subject areas."
Familiarity with Children's Literature	Expanded knowledge about children's books	"I became aware of a variety of excellent children's books and authors that will influence my selection of literature."
Strategies and Techniques for Sharing Books	Development of new strategies and refining skills in sharing literature	"I learned to share books in an interesting manner and to motivate students to read more on their own time."
Children's Learning/Children as Learners	Effects of literature on students' learning and insights into children as learners	"How sensitive students are to literature! They pick out the littlest details!"
Personal Response to Literature Sharing	Teachers' feelings about books and the opportunity to share them	"I've always had a deep love for literature and the sharing of these things that I enjoy so much was such a pleasant experience."

lar Insights, (b) Familiarity with Children's Literature, (c) Strategies and Techniques for Sharing Books, (d) Awareness of Children's Learning, and (e) Personal Response to Literature. (See Table 2 for definitions and examples of teachers' comments.)

Teachers' insights into the legitimacy of read aloud time in the curriculum (program/curricular insights) stand out in their reports. In addition, teachers reported learning a great deal about books for children (familiarity with children's literature), as well as ideas for sharing literature. Their insights into children's responses and capacity for dealing with complex thought (children learning/children as learners) suggested that the feedback they received from their students was positive and substantial. Finally, they reported enjoyment from working in the program and recognition that their enjoyment was contagious (personal response to literature sharing).

Teachers' insights into student learning. Four major categories of teacher awareness of student learning emerged from the analysis of the propositions: (a) Response to Literature, (b) Literacy Acquisition, (c) Oral Language Development, and (d) Appreciation and Enjoyment of Books. (See Table 3 for explanations and sample comments.)

Teachers reported such diverse student learning as improved listening skills, in-

Table 3

Teachers' Perceptions of Student Learning

Teacher Insights	Explanation	Sample Responses
Response to Literature	Students' engagement with books	"They lived each book."
Literacy Acquisition	Knowledge growth in reading (and writing)	"They were acquainted with many stories, authors, and they could recognize award winning books."
Oral Language Development	Growth in language, use of variant structures, and vocabulary knowledge	"My students expanded their vocabulary. I noticed they were learning and understanding vocabulary that is not usually taught at their grade level."
Appreciation and Enjoyment	Attitudes toward voluntary or free reading time	"My students learned to love books . . . . I had never in my 18 years of teaching experience seen students get this excited about books."

creased motivation, improved comprehension, broadened concepts of reading, belief in themselves as readers, and a more interactive classroom.

At the end of the 18-month implementation period, participating teachers were videotaped in group interviews. The purpose of these interviews was to establish a record of teachers' observations, narratives, and anecdotal responses to the projects' components (including the use of literature units in storytime). From the 23 questions posed during these interviews, responses to relevant questions (those inviting teacher reflection on their own learning and students' learning) were subjected to the same content analysis procedures as were the written responses. The initial category structure served these observations as well: A random sample of these propositions, categorized by professors of reading education, established interrater reliability at .90 after points of discrepancy were negotiated. In addition to the verification of categories/themes of teacher and student learning that emerged from the videotaped interviews, the tapes also provided rich, elaborated accounts of the effects of literature usage in the classroom. For example:

> We're even buying books for our classrooms. I think we're unit-wise now. Before, we were just walking in and getting anything we could find. And now you think, "let me make this unit," . . . "let me make [that] unit."
>
> . . . it's just really great when you put a new unit out and they walk in the room. Just to see the excitement on their faces of "Wow! New books!" And how they go to them and look at them. They just really want to go and get those books even if they haven't read the stories yet. It's really exciting!

> I think probably the biggest difference that I've noticed from last year to this year is the kids picking out patterns, and looking more for authors and illustrators, and noticing things that are similar in the books and things that are different between the units.

CONCLUSIONS

Sharing literature in classrooms and encouraging children's personal responses helped to provide these teachers with insights about their children's literary understandings as well as with insights into their own learning. Specifically, these teachers reported they learned about the legitimate place for sharing literature in the classroom, gained appropriate strategies for sharing that literature with children, and better understood the instructional environment (and the "tools") that promote student learning. All of these areas of knowledge—of the learner, of subject matter, of pedagogy, and of curriculum—conform to Shulman's (1986) proposed categories of teacher learning.

At a time in which lifelong teacher education and teacher "empowerment" are predominant factors in the professional model, it seems imperative that teachers reflect on the tasks of classrooms from a variety of vantage points and across time, asking cogent questions about the effects of teaching practices on student learning. In this study, the teachers' refrain was repetitive: Children's language growth and reading habits are affected by good stories shared in related groupings. Their reflections on student growth simultaneously revealed their own power as learners. Ultimately, although change was evident, these teachers already possessed far more tacit knowledge than they themselves had acknowledged. Perhaps, feeling entrapped in prescribed goals, curriculum, texts, and routines, they had lost sight of (or failed to find time for) some of their own viable tenets. In evidence throughout their written and verbal responses to the project were their "new" ideas, but more important, evidence that their old ideas were being reexamined, juggled, and reformulated. In some ways, these teachers seemed to feel freed to test their assumptions, to dust off neglected practices, and to try again that which had always seemed reasonable. Yet, although validated in some beliefs, they seemed challenged in others. Whether labeled as learners or "reflective practitioners," these professionals assumed responsibility for their own learning as they worked to gain a better foothold on shaping their children's literacy education.

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BECOMING A TEACHER OF LITERACY: NOVICE WHOLE LANGUAGE TEACHERS IN CONVENTIONAL INSTRUCTIONAL ENVIRONMENTS

Nancy D. Padak and Olga G. Nelson
Kent State University

Although field experiences are generally considered essential for teacher preparation, critics charge that they often result in learning about teaching through trial and error, rather than careful thought and scholarship (e.g., Goodlad, 1988; Lanier & Little, 1986). Alvermann (in press) observes that the trial-and-error or "traditional craft" conception of teacher education, although pervasive, lacks empirical support. She calls for additional study of preservice reading teacher education, particularly context-sensitive examinations of prospective teachers' development as reflective practitioners.

Such study should explore prospective teachers' problems and concerns which, given the complexity of the teaching-learning process, are likely to change over time. Previous research has described these concerns prior to the induction year: from personal concerns, such as feelings of adequacy and acceptance, to concerns related to children's needs and the impact of instruction (Blankenship & Cunningham, 1979; Buitink & Kemme, 1986; Caruso, 1977; Fuller, 1969). Induction-year teachers typically cite problems related to such teaching issues as discipline and management, school routines, and student motivation (Gray & Gray, 1985; Veenman, 1984).

Recent paradigm shifts in literacy teaching and learning may cause additional problems and concerns for prospective teachers; they may learn theories and practices in college that they do not see implemented in the field. Allen, Freeman, and Lehman (1988) found that prospective teachers' confidence increased when classroom practices were congruent with their own college coursework. It is likely that the reverse may also be true—that attempting to implement whole language principles and practices in conventional classrooms may decrease confidence and generate concerns.

Thus, descriptions of whole language prospective teachers' problems and concerns related to literacy instruction may inform efforts to support their growth as teachers. Case studies (e.g., Merriam, 1988; Yin, 1984) of two prospective whole language teachers were developed to catalog their problems and concerns over an academic year and to uncover aspects of the classroom environment that affected their development as teachers of literacy. Two questions provided a focus: What concerns do prospective whole language teachers express as they begin to teach reading and writing? How do they attempt to solve problems encountered during literacy instruction?

INFORMANTS AND SETTING

Sheila and Karen were informants for the study. Both were traditionally aged, undergraduate elementary education majors. Each had demonstrated excellence in two reading and writing methods courses taught by one of the researchers prior to the beginning of the study. These courses focused on relationships among pedagogical and literacy-learning theory and practice and on the teacher as informed decision maker within the framework of whole language/language-experience principles. Thus, informants and researchers were well-acquainted, and the researchers had specific knowledge about the content and intent of their college coursework in literacy learning.

During the year of the study, Sheila and Karen completed four 8-week field experiences as part of a collaborative teacher education project coordinated jointly by personnel from a large, urban school system and faculty from a nearby university. The first two experiences (3 full days per week) involved observing, assisting classroom teachers, and taking responsibility for some aspects of literacy instruction. Concurrently, they completed a third reading/writing methods course, which included weekly seminars designed to support their growth as informed decision-makers and reflective practitioners. The second two field experiences involved full-time student teaching.

Literacy practices in the school system where Sheila and Karen taught were in the beginning stages of transition from conventional, skills-dominated instruction to more holistic instruction. Curriculum documents and district-mandated recordkeeping procedures in reading, for example, focused upon a traditional scope and sequence of reading skills. Inservice programs for teachers, on the other hand, focused on aspects of whole language learning. The nature of classroom literacy instruction within the district, coupled with Sheila's and Karen's understanding of whole language principles and practices, suggested that their development as teachers of literacy might be particularly interesting to study.

DATA SOURCES AND ANALYSIS

Data for the study were gathered from written journals, interviews at the end of each semester, and interviews immediately following observed literacy instruction. In the written journals, kept during the first semester of the study, Sheila and Karen described and evaluated their own performance as literacy instructors, including their concerns or problems and attempts to or ideas about resolving them. End-of-the-semester interviews focused on teachers' evaluation of their own changes and learning. Sheila and Karen were observed eight times throughout the year. Field notes from observations provided a framework for follow-up interviews that focused on instructional evaluation and interactive decision-making. All interviews were audiotaped and later transcribed.

The researchers collaborated in locating data pertinent to the study and reducing the data for analysis. The process first involved identifying data from all sources congruent with the research goals (Guba & Lincoln, 1981). Data sets or case records

(Patton, 1980) were then created for each field experience for each teacher. These were combed for patterns and regularities (Goetz & LeCompte, 1984; Lincoln & Guba, 1985). Inductive analysis uncovered categories of concerns and problems, which were then applied to the literacy learning events which comprised the case records.

Three processes were used to establish the trustworthiness and plausibility of findings. The researchers completed each stage of data reduction and analysis independently and then collaborated to share insights and resolve discrepancies. Triangulation of the data (Mathison, 1988) revealed that categories were reflected in the different data sources, although differences in depth of explanation were noted (i.e., interviews following observations yielded more detailed evaluations of instruction than written journal entries). Finally, member checks (Merriam, 1988), conducted periodically throughout the study, established that emerging findings and interpretations were plausible from informants' perspectives.

FINDINGS

The inductive analysis of case records yielded eight general categories which are displayed and defined in Table 1. Most literacy learning events included concerns or problems from more than one category, and each teacher's concerns or problems spanned all categories. Both had relatively few concerns as the year began, which might be expected, since their field activities involved observing instruction and assisting in minor ways. As their instructional responsibilities increased, so did their concerns and problems.

Differences between the two teachers emerged from this preliminary analysis. For example, Sheila articulated problems and concerns related to students more often than Karen did; Karen seemed more concerned about her own knowledge. Further analysis of findings revealed interactions among concerns and several key contextual differences.

Becoming a Teacher of Literacy: Sheila

Sheila's first and fourth field placements were in the same fifth-grade classroom. Her second and third placements were in a third grade and a kindergarten. Her concerns and problems during all placements clustered in four categories: beliefs and practices, students, implementation, and personal. Closer examination of the situations that prompted these concerns revealed a relationship among these categories and a pattern in Sheila's development as a teacher of literacy.

Sheila's instructional responsibilities in reading and writing during her first two placements typically involved teaching lessons from teacher's manuals, as directed by her cooperating teacher. Her first experience, for example, "consisted of a workbook page that was to be used in conjunction with a story that they had already read." In evaluating this lesson, Sheila commented that the students "didn't learn much. I have a feeling that those who already knew how to use an index were able to answer the questions. The ones who . . . didn't know how to use an index were not able to learn

Table 1

Categories of Concerns and Problems

Beliefs and Practices: concerns or problems related to (a) putting one's beliefs into practice, or (b) being asked to do something that conflicted with one's beliefs. Examples: "I'm learning that I like whole language . . . and fully support it, but I'm unsure of everything I should and shouldn't be doing to be most effective." "I thought quite a few things that I was asked to do were dumb."

Materials: concerns or problems related to using or selecting materials. Example: "I said I would do it so I forged ahead . . . . The manual assumed that these third grade students didn't know the days of the week. Of course they do . . . ."

Planning: concerns or problems related to planning literacy instruction. Example: "I had to think hard to come up with approaches to help them understand."

Implementation: concerns or problems that arose as lessons were implemented. Example: "one person said 'sad', and then everybody said that too."

Students: concerns or problems related to the impact of instruction on children. Examples: "they weren't getting my point." "I wonder if the students are learning."

Personal: concerns or problems related to the teacher's attitudes or feelings. Examples: "a nervous wreck," "scared to death."

Knowledge: concerns or problems related to one's own lack of knowledge. Examples: "couldn't understand why they didn't just say the two rules and figure it out." "You don't know what to expect out of that age level of kids."

Management: concerns or problems related to managing instruction. Example: "I didn't like how they had their days set up . . . . Everything was chunks of time . . . . And that was hard for me to work with."

from the worksheet . . . . I certainly wouldn't use that STUPID worksheet. We would use a real index . . . ." Another lesson, again presented to her by the teacher, involved poetry: "It was a big flop. The children were so bored I didn't know what to do with them. But the teacher had given me the material from the teacher's manual . . . ."

Sheila's concerns about these lessons centered on instructional procedures, the impact of instruction on children, and her own frustration and embarrassment. A description of an experience midway through the second placement shows the interaction among these problems and concerns: "My teacher asked me to [introduce a story by following] the manual . . . it assumed these children were dumb as rocks . . . . But I said I would do it, so I forged ahead . . . . The first thing the manual wanted the students to do was read the words . . . . They thought I was crazy . . . . Then I read [a] paragraph . . . . Each time the children heard one of the words they were to raise their hands. Dumb . . . . Then I was supposed to read the paragraph again and point to the words (written on the board) each time I said one. Dumber yet! . . . I think the children should have been insulted . . . . All of this was meaningless to the children . . . . I was embarrassed to be trying to teach this lesson."

Toward the end of both of the first two placements, Sheila decided to alter manual suggestions somewhat. Her evaluations of these lessons were more positive, but she still questioned if children were learning: "They thought it was fun. I don't know if anybody learned anything or not . . . . The ones that already knew how to spell the words were the ones who volunteered . . . . [If I had the choice] I think I would not use it at all. But the kids thought it was fun."

Sheila created her own lessons twice during the first semester of the study. One "teachable moment" began when a child shared a story she had written at home. The other was a poetry lesson that involved brainstorming, drafting, editing, and preparing final copies for a bulletin board. Her concerns about this lesson, which spanned several days, were related to unexpected responses from children: "In fifth grade, they hadn't encountered it [brainstorming] yet . . . they were not used to being handed something back to change . . . . They didn't even know what the term 'rough draft' meant." She solved each of these problems by asking children what they thought and by explaining the concepts. She was satisfied with the results: "The kids were so excited . . . because they wanted to do it . . . . Each child experienced great success . . . . They were proud to see their work on the bulletin board, and each wanted to read their friends' poems and have their friends read theirs."

Sheila's instructional experiences during the student teaching semester reflected these same three patterns. Early in her third placement, she was asked to "teach schwa . . . . I ended up doing it, and I floundered and was exasperated. I hated it." Eventually, she decided to take more direct action: "So then pretty soon I got bold and I said, 'Can I take my reading group to the auditorium?' And we did some role playing and we acted out the story . . . and we drew things on the chalkboard, and we wrote things, and we did some language experience. And that got better as time went on."

This incident became a turning point for Sheila; she took responsibility for "her reading group" during the rest of that placement. At the beginning of her fourth placement, "I walked in and I said, 'We're going to do this and we're going to do this.' And everything was [fine]." Her problems and concerns still centered on beliefs and practices, but in a different way: she appeared concerned that her practices were best reflecting her beliefs. For example, she had concerns about active involvement and questioning strategies. In addition, she evidenced concern about helping children take responsibility for their own learning: "Ryan came up to me and asked, 'Is this long enough?' And I said, 'Did you write everything you wanted to say? Do you have any more ideas you want to put on this paper?' "

Overall, Sheila progressed through three general stages as she became a teacher of literacy. At first, she did what the teacher asked her to do. Since she was required to use teacher's manuals, many of her concerns related to the conflict between her emerging beliefs about literacy learning and the practices she had been asked to follow. She also expressed dissatisfaction and frustration about the impact of her instruction on children. She sensed that they were not interested or learning, but seemed unable to solve this problem, since she did not feel free to devise her own lessons: "When she tells you, you have to do this. You know that you could do it a different or better way, or not at all. You still have to do it."

During the second stage, she still followed the teacher's instructions for the focus of lessons, but made her own decisions about implementation. She evaluated these lessons more positively, but questions persisted about whether children were learning, as opposed to practicing things they already knew or simply having fun. The final stage, when she became "bold," was characterized by independence in all aspects of planning and implementing instruction. She took this responsibility rather than waiting for it to be given to her. Although management concerns increased at this point, she expressed satisfaction and confidence in her own ability and in the impact of her teaching on students: "when I got bold and started saying, 'This is how I want to do this,' that was when I started."

Becoming a Teacher of Literacy: Karen

Throughout the year of the study, Karen taught in a fourth-grade classroom, a kindergarten classroom, a sixth-grade classroom, and a second-grade classroom. She frequently expressed concerns and problems related to beliefs and practices and to her own knowledge. Again, closer examination of instructional situations sheds some light on Karen's development as a teacher of literacy.

Unlike Sheila, Karen began participating in literacy activities almost immediately: "Since the second day of class, I have been reading to the students daily." During this same placement, Karen asked to implement journal writing in the class, because "I thought that this would be an effective way of putting the theory, 'The more you write, the better a writer you become' into practice." The teacher agreed, and Karen began. She thought that the experience went well; her concerns reflected differences in her beliefs and those of the cooperating teacher: "My cooperating teacher [insists that students write] in cursive . . . . I wouldn't want some students to hold back due to not wanting to write in cursive." "They are so used to being structured and spoon-fed . . . . They still ask me questions about spelling and topic selection . . . there are usually a lot of questions at the beginning . . . but once they begin writing, they seem to move on rapidly and enjoy writing."

During her first placement and most of her second, Karen implemented some of her own ideas, but only on "my time": "She does not give them the opportunity to write in their journals every day or encourage them . . . [to read or write] in their spare time. I, on the other hand, suggest this quite often. I really push reading a good book or writing in their journals whenever they are finished with . . . worksheets. This power of suggestion is starting to take root."

If Karen felt strongly about situations, she tended to talk with her cooperating teachers about her own views: "I was brave enough to suggest this to [cooperating teacher] and she agreed." "So I took the chance and asked about writing a book about our class . . . ." Sometimes Karen simply proceeded according to her own beliefs, as when she tutored Sam, who was having difficulty learning cursive handwriting: "[cooperating teacher] has given me a 'mile high' pile of worksheets . . . I realize Sam needs practice, but . . . I think he should practice his writing in some situation that is meaningful to him . . . I think I will be sneaky and use my own approach . . . ."

Karen's knowledge concerns had two sources. Some reflected insecurities about her knowledge; during her sixth-grade placement, she also worried that students might "know more than I do." Most of her knowledge-based concerns, however, were related to finding the "best way" to put her beliefs into practice: "I like . . . whole language . . . and fully support it, but am unsure of *everything* I should and shouldn't be doing to be most effective . . . I want to do the best job possible." These concerns escalated during her kindergarten placement: "I walked in on the students going through the alphabet in this fashion: B-B-B-Ba-Ba-Ba-Banana, C-C-C-Ca-Ca-Ca-Cat. Needless to say, I cringed." Sometime later, Karen and the cooperating teacher "got into a *big* discussion about teaching language arts. She asked me how I would teach it and I said I would use whole language [and] explained the theory behind it . . . . She said that she has been slowly moving in this direction . . . but that she doesn't have enough information." The teacher then asked Karen for information, who became concerned about her knowledge: "I'm afraid . . . I'll do something wrong . . . . I want this to work out so she is convinced of the power of whole language . . . . So *please* give me any advice . . . ."

During her student teaching semester, Karen was again able to put her own ideas about literacy learning into practice. As a result, she was frequently concerned about issues related to beliefs, practices, and implementation. As she planned lessons, for example, she questioned such issues as how to encourage involvement without taking control of the conversation away from children. Later in the semester, she noted that her instructional focus differed from the teacher's: "She'll focus on syllables or something . . . . I'm not focusing on a skill . . . I'm focusing on just reading."

By the time she entered her fourth placement, her confidence increased and she readily evaluated situations and resolved her own concerns: "She preached that she was whole language and I . . . found that she didn't know what whole language was . . . from my experience . . . she was doing things like journal writing . . . and it wasn't really writing, it was fill in the blanks. So I . . . decided that I was going to do journals and let them write what they were going to write."

Despite differences in their teaching experiences, both Sheila and Karen completed the year feeling successful. Sheila commented, "By the end I was so excited . . . . I just think reading and writing encompass all the other aspects of learning . . . and you can teach anything as long as you make it relative to what's going on." Karen's self-evaluation focused on confidence: "It is hard to know if you are doing the right thing or not . . . [but] I felt like I knew what I was doing . . . . I believed in myself much more . . . toward the end I saw things I didn't like, but I tried to . . . implement them in my own way."

CONCLUSIONS

For Sheila and Karen, the process of becoming teachers of literacy involved weighing the value and logic of what they had learned about literacy instruction against their cooperating teachers' beliefs and practices. Concerns and problems arose as they attempted to mediate differences between what they believed or had learned and what they observed or had been asked to do. Although they completed the mediation process and resolved their concerns and problems in different ways, several aspects of classroom contexts seemed to affect their development as teachers.

The most pervasive contextual factor was the extent to which classroom practices and the literacy-learning beliefs underlying them corresponded to the prospective teachers' own emerging beliefs. Until she "got bold," Sheila typically followed the teachers' routine; the message she received was, "Do it my way." In Karen's case, teachers allowed her to implement her own ideas, but expressed satisfaction with their own ways of teaching; the message she received was, "Do what you want, but my way works well." Although understandable from the cooperating teachers' points of view, both these stances created concerns, since classroom practices conflicted with the prospective teachers' literacy-learning beliefs.

The nature of materials and activities available for literacy instruction was another contextual factor that affected concerns, since these also often conflicted with prospective teachers' beliefs. Both expressed concerns about whether and how to use conventional materials provided for them. Both also attempted to use materials in manners congruent with their own beliefs but were not satisfied with the results, particularly in regard to children's learning.

Communication between cooperating and prospective teacher was yet another contextual factor that appeared to influence these prospective teachers significantly. The prospective teachers' perceptions of cooperating teachers' expectations seemed particularly important. Neither expecting total adherence to the established routine nor expecting to learn new ways of teaching from the prospective teacher was helpful; in fact, these expectations caused a majority of the expressed concerns.

This study described the process of becoming a teacher of literacy by examining how two prospective whole language teachers reacted to conventional instructional environments. Although an exploratory study, findings suggest some contextual influences on prospective teachers' development that warrant further examination. Of these, the congruence between prospective and cooperating teachers' beliefs and practices, the types of literacy instructional materials available, and communication between prospective and cooperating teachers seemed most critical.

In recent years, we have become increasingly aware of the importance of viewing literacy instruction from a sociocommunicative perspective. The results of this study suggest that viewing prospective teacher's development from this perspective may reveal key aspects in the process of becoming a teacher of literacy. These, in turn, may inform efforts to support prospective teachers' development.

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IMPLEMENTING ANCHORED INSTRUCTION: GUIDING PRINCIPLES FOR CURRICULUM DEVELOPMENT

Kim McLarty, Jennifer Goodman, Victoria J. Risko, Charles K. Kinzer, Nancy Vye, Debbie Rowe, and Janice Carson
Peabody College of Vanderbilt University

This paper will describe the design principles of a curriculum developed to enhance student's literacy development and acquisition of knowledge. We first present an overview of our work in video-based instructional contexts (Bransford, Kinzer, Risko, Rowe, & Vye, 1989). In our overview, we define anchored instruction and provide a brief description of our research project examining the effects of anchored instruction on students' learning. We then identify instructional decisions that guided our curriculum development.

Our curriculum, based on what we have called "anchored instruction," is designed to create a rich source of information within a shared learning environment that generates interest and enables students to identify and define problems while they explore curriculum content from many different perspectives (Bransford, Vye, Kinzer, & Risko, 1990). We have reported previously results of investigations that have demonstrated the effectiveness of anchored instruction for enhancing students' vocabulary, reading comprehension, writing, and knowledge of social studies concepts (Kinzer, Risko, Vye, & Sherwood, 1988; Risko, Kinzer, Goodman, McLarty, Dupree, & Martin, 1989). The design principles discussed here are grounded in research (referenced above, partly supported by OERI grant G008710018) and can be applied by others who wish to implement an anchored instructional approach, especially using a videodisc-based anchor.

OVERVIEW

We have been exploring the value of providing anchored instruction to enhance student's development of literacy knowledge and general knowledge across the curriculum. As suggested by theorists such as Dewey (1933) and Hanson (1970), we believe that students' acquisition and use of knowledge is greatly enhanced when they are immersed in opportunities to examine phenomena and to experience change in perceiving and understanding important concepts. Introducing students to new concepts and principles within problem solving situations—situations in which teachers guide students to use information as tools for solving problems—allows them to experience the changes in their own thinking and an opportunity to elaborate on and evaluate the new information (Bransford, Vye, Kinzer, & Risko, 1990). Unfortunately, for too many students, the introduction of concepts and theories seems like the mere introduction of new facts to be memorized. When instruction does not encourage students to examine ideas from different perspectives or to use information for solving problems, it is unlikely that these students will experience how the new information can guide their thinking in new, but relevant contexts. For these students, acquired facts often remain inert knowledge (Whitehead, 1929) because students fail to think to use this information when it is needed for solving relevant problems.

Anchored instruction provides rich and cohesive informational contexts that enable students (a) to identify and define problems; (b) to specify reasons for problem solution; (c) to generate, under minimal teacher guidance, strategies for solving identified problems; and (d) to observe quickly the result of their attempted solution. Students are then introduced to additional information that is relevant to the anchor, and are able to use their problem-solving strategies to solve related problems. The major goal of anchored instruction is to enhance learning retention and use of concepts by letting students experience the changes in their perception and understanding of the anchor as they examine information from multiple points of view.

Central to our implementation of anchored instruction is the use of videodiscs to create rich problem-solving environments that serve as shared contexts for exploration and discussion. Ideally, anchored instruction (a) involves a problem-oriented approach to instruction; (b) involves sustained thinking, often in groups, about problems; (c) permits students to integrate skills and knowledge that in normal curricula remain disconnected; and (d) does not presuppose extensive background knowledge.

We used the film *The Young Sherlock Holmes* (Spielberg, 1985) as our primary anchor for relating content across subject areas. This film is available commercially and was purchased in its videodisc version for a cost of approximately $30.00. The content of the film is sufficiently rich to support sustained thinking about problems and concepts embedded within our curriculum. For example, students were immersed in the exploration of the film to study plot and subplot information and to identify characteristics of a well-developed story. Students were encouraged to define story attributes and to monitor their perceptions of how story elements relate to each other (e.g., how character motives lead to goal statements) and to their comprehension of plot development (e.g., the resolution of goal statement). Students used this information to compare the "Young Sherlock" story to other stories, including written mysteries (including but not limited to other Sherlock Holmes mysteries) and when writing their own stories.

Second, the anchor was rich with the information that was needed to comprehend related text and to facilitate class discussions. Often, students have comprehension problems or have limited access to class discussions because their prior knowledge is insufficient or not accessed appropriately. Video-based anchors extend instruction beyond the typical lecture, text and workbook approach to delivering information because they contain much richer and more easily-processed sources of information than are available in verbal, or even written, description. With videotape, we can combine dynamic, visual and auditory information (e.g., facial expressions, affective states, gestures, voice inflections, scenes of towns) with oral language and print. With the introduction of random access videodiscs, however, we have additional ability to return almost instantly to any segment and re-view events. This rapid access to rich information can have powerful effects on students' learning and cognitive development because it increases opportunities for finding relevant issues that are embedded in the video (Bransford, Sherwood, Hasselbring, Kinzer, & Williams, in press).

Third, the content of the film, set in turn-of-the-century Victorian England, permitted students to integrate skills and knowledge that in traditional curricula remain disconnected. Students acquired useful information about what it was like to live during this time in history as they explored the film. Their perceptions and understanding of the Victorian era were expanded as they studied the film and related texts to identify historical, political, geographical, and technological issues relevant to this time period.

Fourth, using the film as an anchor provided a shared learning context for mediation. Students who view video in the absence of a mediator may be entertained, but they may miss most of the opportunities for learning that the video provides. Traditional instruction is limited, also, because teachers and students usually do not have common background experiences to which new learning can be connected. In such situations, teachers usually tell students answers instead of providing problem-solving environments in which students acquire methods to frame problems and use information independently. Conversely, teachers and students in our curriculum shared the anchored experience, and our teachers mediated students' learning by arranging instructional conditions and providing instructional feedback that helped students to recreate and examine mutually familiar information so that discussion and learning was facilitated. Our teachers provided organizers, such as character analysis sheets, which were completed as a group and used as a reference for later analyses of content, such as the comparison of a character's behavior across several episodes.

We believe there are several important differences between anchored instruction and traditional curricula. First, our curriculum goes far beyond the loosely connected thematic instruction that is provided by many commercially prepared materials. Our instruction provides explicit information about the anchor and explicit links to the multiple ideas that are related to the anchor. Second, information in our curriculum was integrated around specific problems to be solved (e.g., students were encouraged to view entire episodes of the film to identify characters' motives contributing to characters' actions and how the setting information, such as social conditions of that time period, may allow or inhibit such actions). In contrast, traditional curricula often introduce different ideas in different contexts. In most basal readers, for example, students are introduced to different components of story grammars. Each component is often introduced in a different story rather than in a single story. Similarly, in many attempts to teach social studies information, different components (e.g., geography, social conditions, history) are taught in the context of different examples. Traditional curricula are organized so that science, mathematics, reading, writing and so forth all tend to be compartmentalized and taught in different contexts rather than integrated into single contexts. Third, we believe that the use of video provides students who are behind their peers in reading development access to information that forms the basis of class discussions. Further, videos contain much richer information than is available in some printed media and in computer programs with limited graphics.

Gestures, affective states, scenes of towns, music, etc. accompany the dialogue. This rich source of information allows for the possibility of finding relevant information that is embedded in the video.

DESCRIPTION OF RESEARCH PROJECT

Our research on anchored instruction was conducted over a three year period in two fifth-grade classrooms. The main goal of our project was to develop a video-based, anchored curriculum and to assess its effect on students' critical thinking and independent use of information. Second, we planned to develop a curriculum that could be implemented by classroom teachers.

During the first 2 years of this project, students participated in either the experimental, anchored program or the control program. Students in both programs viewed the film and were introduced to the same basic content (e.g., vocabulary words, story elements, social studies concepts). The major difference between the experimental and control programs involved the use of the video-based anchor. In the experimental program, each lesson was tied to the anchor. In the control program, lessons followed the more typical format of focusing on target concepts within contexts that were unrelated to each other. There was no long-term anchor for the control program.

Across the 2 years, analyses of data collected from multiple sources (students' pre- and posttests, field notes and analysis of video- and audiotapes, and student and teacher interviews) reveal large differences between the experimental and control students on several measures. Experimental students, across ability levels, were better able to describe character's feelings and corresponding motives, and they wrote stories that were more causally coherent, generating plots that linked character actions and events to goal statements and goal resolution (Risko et al., 1989). Recall of vocabulary related to story information and spontaneous use of vocabulary in novel contexts were significantly higher for the experimental groups (Kinzer, Risko, Vye, & Sherwood, 1988; Risko, et al., 1989).

INSTRUCTIONAL PRINCIPLES FOR CURRICULUM DESIGN

A careful examination of our lesson plans, extensive field notes recorded during classroom observations, and interview data helped us to identify seven major decisions that guided curriculum development. We believe that these decisions have implications for instruction beyond the scope of our project; they are general and need to be considered when developing any anchored curriculum.

The seven key decision points which guided the development and implementation of our anchored instruction relate to: (a) choosing an appropriate anchor, (b) developing shared expertise around the anchor, (c) expanding the anchor, (d) using knowledge as tools for problem solving, (e) teaching with the anchor; (f) merging the anchor with literacy experiences, and (g) allowing student exploration.

Guiding Principle 1: Choosing an Appropriate Anchor

Choosing an anchor depends largely on the curricular goals that are targeted. That is, an anchor is not equally appropriate for all teaching situations. We began by analyzing the fifth-grade curriculum to clearly specify instructional goals. Once these goals were established, we examined several possible video anchors that were identified as being appropriate for the age group, considering such things as language, violence, interest, content, and so on.

State guidelines mandated curricular goals relating to plot, characterization, vocabulary and comprehension development in reading. In social studies curricular goals included a unit of American and world history, whereas the science curriculum included units on inventions and simple machines. These became the core areas of our curriculum. We thus searched for an anchor that included a strong plot line, with clearly defined character development, definite causal structures that could be related to story grammar elements, and verbal and visual clues pertaining to a clearly definable period of history.

Some potential video anchors were rejected because they were too general, thus requiring too much external, teacher-imposed structure before curricular goals could be related to the anchor, or because they were so narrow that setting information could not be generalized to a historical time period—that is, the setting might not have included "markers" that could be targeted as indicative of a particular historical period.

Thus, the most important decision in choosing an anchor came before a range of anchors was evaluated. The critical element was a clearly articulated set of instructional goals. The choice of anchors depends on the relative match between these goals and the video anchor.

Guiding Principle 2: Developing Shared Expertise Around the Anchor

The second decision for curriculum development relates to facilitating students' expertise around the anchor. We began with the belief that a well-developed base of information could provide numerous, rich examples of target concepts that would enable the teacher and students to make links from the movie to contexts across curriculum areas. However, after evaluation and observation we realized that one showing of the film was insufficient to build an awareness of the complexity of information present in the anchor.

It is not necessary to show the entire film repeatedly to address this issue. After the film was viewed once, teachers and students together identified meaningful units within *Young Sherlock Holmes*. Using the random search and access capabilities of the videodisc technology, the teacher quickly found and replayed these scenes. Class discussion of each scene centered around the characters and actions within the respective scene, as well as how the scene related to the rest of the film. Students noted the frame numbers for the scene under discussion and also brainstormed to find a label, representing the main idea, for each scene. These labels became mnemonic reference points in later class discussion. Other activities included the preparing of a storyboard for the film where the important segments were listed: a defining picture was drawn, and frame numbers were attached. This was posted in the class and served as a reference source for students and teacher when wishing to find a particular segment in order to use an example or to make a point.

The above activities developed expertise in the film as a whole, and allowed students to have clearly in mind the general plot structure and sequence of events. Additionally, students assumed increasing responsibility for their learning as their knowledge of the anchor increased. An observed outcome of this shift was more student-generated discussion, where students asked important questions. The following transcript from our fieldnotes illustrates such discussions:

> *Lindsey*: "All the darts hit in the neck. Why?"
> *Andy*: "It's closer to the brain."
> *Donna*: "Why wouldn't they hit them in the head? That's closer to the brain!"
> *Mrs. Goodman*: "Why *wouldn't* they have hit him in the head?"
> *Unidentified student*: "It could have killed him."
> *Louis*: "Because it might be like, because you might not feel it as much in the neck."
> *David*: "It may be a blood vein, and you hit 'em and that would send it into the circulation. Another thing . . . if it hits him in the head, and it hit the skull, and hit the bone, so nothing would happen."
> *Paula*: "If it had hit him in the head, it would probably bounce off."
> *Mrs. Goodman*: "Why would it bounce off, Paula?"
> *Paula*: "All the hair."
> (David is mumbling in the background that it wouldn't bounce off. He doesn't buy Paula's idea.)
> *Gwen*: "I have this body chart, and it has a vein right here [points to neck] and it is the main blood vein that travels up your neck."
> *Mrs. Goodman*: "What is the name of that vein?"
> *Gwen*: "It's the main vein that comes up from your arm."
> *David*: [on your head] "you've got hair, then the skin, then the skull. You've got to go through just to get to the brain. On the neck there's no hair, and the skin won't stop it."
> *Louis*: "You've got clothes."
> *Mrs. Goodman*: "Do you have bones in your neck?"
> *Andy*: "In health we are studying the skeleton."
> (Lindsey gets up and goes over to the chalkboard to look at a chart titled "All Kinds of Skeletons." Mrs. Goodman suggests that they could ask their health teacher to answer their question. Dean says his Mom works at the Health Department. Mrs.Goodman suggests they ask her also.)

Note that discussion moved from the video anchor to a body chart used for their health class and a student's explanation of how a dart in a neck vein could kill a person. Students also were able to answer each others' questions. Once the teacher and students had developed expertise about the anchor, links to other subject areas and to their prior experiences became a common occurrence within the classroom. The transition from teacher to student responsibility appears to be a natural outgrowth of developing a shared expertise.

Guiding Principle 3: Expanding the Anchor

We began with an anchor that we felt was sufficiently rich to provide a foundation for our curriculum. However, we found that one anchor, even one that has a wealth of varied content, could not meet all the needs of our students and curriculum. Instead, we found that two main problems existed.

First, some gaps in information provided by the anchor required us to introduce additional, related materials. We chose another movie, *Oliver Twist* (Lean, 1948), and a book, *The Wolves of Willoughby Chase* (Aiken, 1963), that were also set in the Victorian Era. The introduction of *Oliver Twist* provided our students with information to contrast and extend information. For example, the living conditions of the rich, as seen in *Sherlock*, were contrasted with living conditions of the poor, as seen in *Oliver*. Additional information, used for achieving a more balanced presentation, was selected on the basis of how well it related to curriculum goals and the primary anchor. Comparisons and contrasts were explicitly made between new information and the anchor.

Second, students' interest began to dwindle as they became very familiar with the anchor. This problem disappeared when additional content sets were added. This was seen most explicitly in students' increased understanding of concepts such as orphanages and child labor laws. Students in the experimental group had a much richer understanding of these situations in *Oliver Twist* as a result of reading about these aspects in *The Wolves of Willoughby Chase*, which was introduced to extend the upper-class concepts presented in *Young Sherlock Holmes*. When we expanded the anchor by introducing the additional content sets, students' interest rose as they used knowledge from the anchor to explore and understand new information.

Guiding Principle 4: Using Knowledge as Tools for Problem Solving

Our next decision related to building students' knowledge in ways that allowed them to use this information to solve problems or to relate information across content areas. As expected, the anchor provided a meaningful shared context from which students acquired new information. However, their use of information to identify or solve other problems didn't occur spontaneously.

Several curricular decisions stood out as being most effective in helping students retrieve information when it was needed for problem solving. First, students were given a purpose for learning new information that they could accept as a valuable reason. For example, exploring the film to identify events leading to goal resolution helped students to develop a cohesive plot structure when writing their own stories. Second, students were provided with organizational tools that would help them recall information when it was needed. For example, students were shown how to use a story grammar outline to help them organize and remember plot information. Third, students were provided with opportunities to use this knowledge in real problem solving activities. For example, students assuming the role of an American Congressional subcommittee explored multiple texts before reporting on medical advances of the Victorian era. With mediation and practice, problem solving began to occur more frequently.

Teaching information well and in an interesting fashion did not insure that the students would use it in other settings. To help our students learn characteristics of situations requiring *use* of information, it was necessary to provide opportunities for students to find relationships among ideas within and across contexts. For example, plots and subplots were studied in their entirety so that students could trace events contributing to character motives and goals and events leading to goal attainment. Instead of asking our students to recall facts about the characters or events in the story, students received problem-oriented instruction requiring them to compare character motives and plot events across the anchor and written materials. Such instruction provided a way for students to practice applying their knowledge and see its value in solving problems. We believe that this type of instruction increases students' ability to understand the conditions and constraints of knowledge so that transfer of concepts to new contexts is more likely to occur (Anderson, 1983, 1987).

Guiding Principle 5: Teaching with the Anchor

We anticipated that use of video in teaching would come naturally to teachers once the film had been shown and discussed in class. Just as good teachers encourage their students to reread parts of a text to find specific information or to correct misunderstandings, we expected our teachers to revisit specific scenes to enhance class discussions. Although this occurred to some extent, we found that teachers, initially, verbally referred to scenes to remind students of the film content. They did not actually return and re-view specific scenes to illustrate concepts within the context of the class discussion. Our teachers required encouragement to consciously prepare plans incorporating specific references to scenes that would tie to their instructional goals. They also needed practice with equipment before they would go to the scene during instruction. We believe it is important to actually revisit scenes because there is a difference between saying "Remember the library scene? Remember how Dudley acted?", and actually using the anchor by saying "Let's look at the library scene and notice how Dudley acts." In the library scene, there is dialogue between two characters, Sherlock and Dudley. Sherlock outsmarts a very proud Dudley when he explains that Dudley's "antique" watch is a fraud and not an antique at all. When students view the scene, they can notice Dudley's tone of voice, the manner in which he holds his head, and his gestures, all of which can produce the inference that Dudley is pompous. In a similar manner, students can be asked to review this scene to detect a character trait of Sherlock (perceptive) or to determine how Dudley may feel in this exchange with Sherlock. Instead of just mentioning the scene, the actual reviewing of the scenes allowed students to notice more specific information on particular aspects of the anchor.

As we found with our students receiving anchored instruction, teachers' acquired expertise with the anchor enhanced their spontaneous use of information presented on the film. As teachers became experts on the anchor *and* felt more comfortable using the equipment, they were more flexible in accessing and using scenes that explicated instructional goals.

Guiding Principle 6: Merging the Anchor with Literacy Experiences

Since we believe that it is possible to strengthen reading and writing skills through the use of video-based anchors, we wanted our curriculum to provide cohesive links between visual and more traditional literacy experiences, both oral and written. Although it is important to link the video anchor with literacy experiences, how they are linked is a critical issue. Literacy experiences needed to be strongly related to the anchor. Asking students to explore the anchor to identify conditions contributing to characters' motives was a precursor to story writing that targeted causes for characters' actions and goal statements.

The anchor provided many opportunities to read, write, and use oral language. A classroom newsletter was written, aimed at sharing information about the anchor as well as information students had explored because their interest was piqued by a specific aspect of the anchor. Group writing activities, including author circles, allowed students to critique each other's work and refine writing that could be published or could appear in the newsletter. Oral reports and skits based on scenes from the anchor were presented by groups to the class. Library research time, provided so that students could pursue interests arising from studying the anchor, facilitated development of research skills.

In short, linking the video anchor with other reading, writing, and oral language activities allowed students to become more active in their own learning. They were able to expand what they were learning from the anchor into other literacy experiences. Students' stories began to reflect what they were learning about story structure from our anchor. Students' reports on the living conditions of the Victorian era represented an analysis of societal and economic issues of that time in history. Students developed expertise, based on library research, on the women's movement, child labor, crime and punishment, health and living conditions, and education during the Victorian era. This was then related to the current status of these issues. Additionally, we began to see links between the anchor and what our students were choosing to read in their free time.

Guiding Principle 7: Allowing Student Exploration

In order for students to develop a sense of expertise, opportunities were provided to allow students to explore the anchor as well as to explore areas of interest generated by the anchor. To facilitate this exploration, the videodisc was made available to students—it was not only under teacher control. Students were able to access the anchor and to find information, using the videodisc, during group project time or during independent study time. For example, when exploring Victorian architecture or setting information, students were able to find relevant scenes without asking for the teacher's help or permission. This resulted in further exploration through library research, with the findings used to check the film's accuracy.

To effectively use the anchor for independent exploration, however, it was necessary that students had available to them an outline of scenes and frame numbers. Purposeful exploration required that students know where to look in the anchor to find relevant information. This was provided by the outline, developed jointly by teacher and students, listing scenes and frame numbers (see Principle 1).

The other major aspect of exploration was sharing. After students explored topics of interest either individually or within group projects, time was provided for class sharing of information. Sharing was accomplished either through the newsletter, mentioned earlier, or through formal skits and/or oral or written presentations. This resulted in several benefits, including more open-ended but relevant discussion that was often initiated and controlled by the students. Allowing time to explore the anchor sparked interest in *relevant* topics that we had not anticipated.

SUMMARY

In summary, there are seven principles that can be used to guide the selection and construction of anchors and the selection of teaching activities to accompany them. The principles are interrelated. For example, until students develop expertise around the anchor (Principle 3), they cannot use their knowledge for purposeful exploration (Principle 7), or to most effectively link the video anchor to literacy tasks (Principle 6).

However, anchored instruction is not presented as a stand-alone or a new procedure to enhance learning. There is much known about what makes instruction more and less effective. Some of this knowledge includes the importance of background knowledge (Anderson & Pearson, 1984), the importance of shared knowledge between teacher and student (Chapman, 1978), the benefit of cooperative learning (Slavin, 1983), the importance of motivation (Wigfield & Asher, 1984), the facilitative effect of problem generation (Bransford, Franks, Vye, & Sherwood, 1989) and so on. Unfortunately, although teachers generally acknowledge the importance of these issues, too often instruction does not incorporate this knowledge. Durkin (1984), for example, has found that teachers are aware of the importance of prediscussion to address background knowledge, yet found only a very small percentage of teachers using this procedure, even when advocated in a teachers' guide. Teachers often state that constraints relating to time, social, and linguistic factors in the classroom often preclude implementing what research has shown to be effective.

Based on what we know about effective teaching, anchored instruction was developed to provide opportunities for teachers and students to work cooperatively in shared experiences. The use of anchors encourages students to view anchors from their own perspective, to link learning across subject areas, to find information to explore problems that they identify, and to experience changes in their comprehension as they are introduced to new ideas from the teacher, from the texts, and from their peers. Providing an anchor is close to what has been advocated in other professions for some time. For example, it is closely parallel to case-based instruction in law and medicine.

Case-based instruction, as described by Christensen (1987), Learned (1987), and Rasinski (1989), is a process-oriented approach that encourages problem formulation and problem solving within thematically tied units of instruction. Yet the success of students' learning depends on the richness of data presented in the cases (Gragg, 1940; Learned, 1987) and on supporting instruction that encourages students to examine cases from multiple points of view. A goal that is common to both anchored instruction and theme-based case analysis instruction is to provide rich contexts for learning so that the content can be studied for different reasons. Such cross-examination enhances problem-solving and cohesive learning (J. Pichert, personal communication, April 3, 1989).

The principles presented in this paper are intended to be guides for those wishing to implement an anchored instruction approach. Although there is much more to be learned about how these guiding principles will affect other instructional settings and different kinds of anchors, we are beginning to see the potential for using these general guidelines in creating new anchors in additional curriculum areas. It is expected that the principles noted above will be continually refined as anchored instruction is attempted in new domains.

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EFFECTS OF GROUPING AND DIFFICULTY OF MATERIALS ON READING ACHIEVEMENT

Michael L. Kamil
Ohio State University

W. Christine Rauscher
Naperville Illinois Schools, District No. 203

Reading instruction is organized frequently around small, homogeneous groups of students. The effectiveness of this practice has been called into question by a number of investigators (Allington, 1983, 1984; Hiebert, 1983). Allington (1983) has suggested that students in the low-ability groups receive impoverished instructional feedback when compared to the students in the high-ability groups. Good and Marshall (1984) conclude that homogeneous grouping has few desirable consequences for low-ability students. Eldredge and Butterfield (1984) demonstrated that students showed no differences in achievement when instructed in heterogeneous groups rather than traditional basal ability groups. Slavin's (1987) review of the literature on grouping found no qualifying studies that directly compared instruction in small ability groups within classes with students receiving whole-class instruction in nonability grouped classes.

In a comprehensive review of classroom organization, Barr (1989) suggested that although there is differential treatment of students in reading groups, there is not necessarily a consistently increasing difference in achievement as students progress through the grades. Rather, there seems to be a constant difference between student grade level and placement in materials *after* first grade.

An important variable that has been widely neglected in these studies is the discrepancy between students' placements in materials and their actual reading levels. This placement relies on determining a student "instructional level." The notion underlying instructional level is that there is an optimal level of difficulty of materials for instruction to be effective. If there is any validity to the "instructional level" concept, placement could be a critical variable. If materials are too easy, learning might be impeded. If materials are too difficult, learning would proceed too slowly, if at all. (See Shanahan, 1983 for a discussion of the concept of instructional level.)

Instructional level should interact with ability grouping within classrooms when there is only a single text used for instruction. That is, students in middle-ability groups should have smaller discrepancies between their reading levels and the level of difficulty of the materials. Students in lower ability groups should find the materials relatively more difficult than other students. Students in the high groups should have very easy materials relative to their reading levels.

Barr and Dreeben (1983) suggest that instructional pacing may be a dominant factor in achievement. Pacing should, of course, be related to the difficulty of the materials used for instruction. With faster pacing, materials would effectively become more difficult. There is conflicting opinion on whether the materials used for instruction should be relatively easy or difficult. However, none of the research studies on grouping have systematically examined this variable.

In the present study, the difficulty variable was manipulated by assuming that materials that were too easy would produce less learning than materials that were more difficult. Since there is an ethical problem in asking students to spend a year in materials that might not produce learning, below grade level materials were deemed inappropriate. Consequently it was decided to manipulate this variable by using materials that were on or above assigned grade level. Although this solution does not allow for all possible comparisons, it produces a range of discrepancies across ability groups, since high group students are using materials that are relatively much ''easier'' than the materials that low group students are using. The effects, if present, should show up as an interaction.

In summary, the following study examined the effects of two variables: small ability group instruction versus whole-group instruction and difficulty of instructional materials compared to measured reading ability for students in the third, fourth and fifth grades.

PROCEDURE

Thirty seven classrooms were solicited on a volunteer basis in a single suburban school district. The dominant instructional pattern in the district was traditionally ability grouping. Teachers were assigned to one of two conditions: Traditional groups or whole-class instruction. Within the whole-class instruction variable, teachers were either assigned to on-level materials or to above-level materials; the reading materials used by the teachers were either the basal readers for the grade level or for one grade level above.

There were 8 third-grade classes, 12 fourth-grade classes and 17 fifth-grade classes. Eleven classes were traditional instruction, 11 were whole-group on-level instruction, and 14 classes were whole-group above level. (One fourth-grade class was allowed to use traditional instruction with above-level materials. These students are not included in the statistical analyses. Their scores are included in Table 1 as a matter of interest.) A total of 869 students participated in the study.

All students were given an informal reading inventory (Burns & Roe, 1985) during the first and second weeks of school. These were administered by paid assistants. Students were also given the reading portion of the *Iowa Test of Basic Skills* (ITBS) (1986) which was scored for Fall administration. Students were also given the ITBS at the normal Spring administration. All ITBS scores are reported in percentiles.

(In addition, students were asked to keep daily logs of reading they did outside of school. Teachers were asked to keep logs of the amount of material they covered daily. These data are not reported in the following discussion.)

Because of presentation formats, the amount of time required for primary instruc-

Table 1

Vocabulary and Comprehension Gains by Grade, Instructional Format, and Materials Difficulty

		Class		Vocabulary			Comprehension		
Grade	*N*	Type	Mat. Diff.	Pre	Post	Gain	Pre	Post	Gain
3	69	Trad	On	66.30	71.40	5.10	59.00	68.90	9.90
	0	Trad	Above						
	75	Whole	On	60.00	67.30	7.30	55.30	62.20	6.90
	74	Whole	Above	63.40	71.60	8.20	61.30	67.40	6.10
Total	218					6.87			7.63
4	95	Trad	On	65.60	70.00	4.40	64.10	68.50	4.40
	27	Trad	Above	71.70	74.70	3.00	62.90	68.30	5.40
	115	Whole	On	61.40	64.60	3.20	57.30	64.10	6.80
	70	Whole	Above	60.70	62.60	1.90	59.60	65.00	5.40
Total	307					3.13			5.50
5	107	Trad	On	72.70	69.90	−2.80	67.10	68.30	1.20
	0	Trad	Above						
	87	Whole	On	70.10	66.90	−3.20	65.40	72.30	6.90
	150	Whole	Above	69.00	66.80	−2.20	63.50	67.50	4.00
Total	344					−2.73			4.03
Grand Total	869								

tion in the whole-group conditions was less than the full time required in the traditional conditions. (Since teachers have to present only one lesson instead of three, there is a great deal of difference in the instructional "overhead" time.) In order to attempt to equate for the amount of time spent in reading and reading-related instruction, a literature program was included with the whole-group classes and was also used to supplement the basal reading materials. No formal measures of the effect of this program addition were taken.

RESULTS

Each student was assigned a reading level for word recognition and one for comprehension based on the results of the informal reading inventory. The placement discrepancy for each student was calculated by subtracting the grade level from the IRI results.

Table 1 shows the vocabulary and comprehension gains as a function of treatment conditions: grade, instructional format (small groups or whole classes) and materials difficulty (on- or above-grade level). Table 2 shows the breakdown of scores as a function of ability (high, medium, or low), determined by a three-way split of each

Table 2

Reading Gains as a Function of Ability on Vocabulary, Instructional Format, and Difficulty of Materials

Grade	*N*	Class Type	Mat. Diff.	Ach.	Vocabulary Gain	Comprehension Gain
3	25	Trad	On	H	−3.10	10.52
	21			M	−2.10	6.90
	18			L	22.60	15.20
3	19	Whole	On	H	−5.00	5.70
	21			M	3.00	−3.00
	25			L	21.90	15.90
3	21	Whole	Above	H	−4.40	3.80
	23			M	−7.40	4.10
	24			L	33.50	17.50
4	29	Trad	On	H	−8.00	−2.34
	34			M	2.10	8.30
	32			L	18.00	6.40
4	37	Whole	On	H	−4.40	1.60
	38			M	−0.20	10.00
	40			L	13.50	8.40
4	19	Whole	Above	H	−10.00	−2.50
	24			M	−8.00	2.10
	27			L	19.60	13.90
5	39	Trad	On	H	−8.50	−2.60
	35			M	−8.20	4.00
	33			L	9.50	2.40
5	29	Whole	On	H	−6.20	3.00
	29			M	−6.20	7.60
	29			L	2.60	10.10
5	50	Whole	Above	H	−8.80	0.70
	42			M	−4.90	1.20
	58			L	5.50	9.10

Averages:

	On				Above			
	Vocab		Comp		Vocab		Overall	
	Trad	Whole	Trad	Whole	Whole	Comp	Vocab	Comp
H	−14.27	−5.20	1.86	3.43	−7.73	0.67	−9.07	1.99
M	−9.60	−1.13	6.40	4.87	−6.77	2.47	−5.83	4.58
L	38.10	12.67	8.00	11.47	19.53	13.50	25.43	10.99
	4.74	2.11	5.42	6.59	1.68	5.54		

group on the basis of the vocabulary pretest. Table 3 presents a similar breakdown on the basis of the comprehension pretests.

Two analyses of covariances were performed for the vocabulary scores and the comprehension scores. Each analysis used the posttest scores as the dependent variable and removed the effects of the pretest scores and the discrepancy level of the reading material with grade placement. (Although gain scores are reported in the table, they

Table 3

Reading Gains as a Function of Ability on Comprehension, Instructional Format, and Difficulty of Materials

Grade	*N*	Class Type	Matt. Diff.	Ach.	Vocabulary Gain	Comprehension Gain
3	26	Trad	On	H	1.20	-8.50
	16			M	7.80	8.30
	23			L	6.90	29.30
3	24	Whole	On	H	4.40	-8.00
	17			M	4.60	0.90
	30			L	11.10	24.30
3	28	Whole	Above	H	0.10	-10.40
	22			M	11.20	5.80
	23			L	16.70	27.50
4	33	Trad	On	H	10.30	-2.70
	28			M	5.30	1.00
	30			L	-1.70	18.00
4	34	Whole	On	H	2.10	2.80
	33			M	-1.90	4.50
	44			L	8.00	16.50
4	19	Whole	Above	H	3.50	-2.30
	23			M	-5.70	0.74
	26			L	6.60	15.80
5	40	Trad	On	H	-6.10	-6.90
	29			M	0.70	2.00
	33			L	-1.30	11.21
5	25	Whole	On	H	3.64	-1.20
	25			M	-8.30	5.40
	28			L	-2.46	16.43
5	49	Whole	Above	H	-3.60	-3.50
	36			M	-3.80	3.30
	60			L	0.10	11.80

Averages:

	On				Above			
	Vocab		Comp		Vocab		Overall	
	Trad	Whole	Trad	Whole	Whole	Comp	Vocab	Comp
H	-1.47	3.38	-6.03	-2.13	0.00	-5.40	0.64	-3.57
M	10.27	-1.87	3.77	3.60	0.57	3.28	2.99	3.57
L	5.03	5.55	19.50	19.08	7.80	18.37	6.13	19.02
	4.61	2.35	5.75	6.85	2.79	5.42		

were not used in the analyses to avoid the problems of compounding unreliabilities when using gain scores.) The independent variables were treatment group (traditional, whole group/on level, and whole group/above level), grade (3, 4, and 5) and either comprehension or vocabulary ability (high, medium, or low).

For the comprehension scores, both covariates were significant, but none of the main-effects were significant. The two-way interaction of Grade × Comprehension

Ability was significant, $F(4, 813)=4.56$, $p<.001$. For the vocabulary scores, both covariates were again significant. The main effect for vocabulary ability was significant, $F(2, 813)=7.027$, $p<.001$. The two-way interaction for Treatment × Vocabulary Ability was also significant, $F(4, 813)=2.922$. $p<.02$. No other effects were statistically significant in either analysis.

A regression analysis was conducted with posttest comprehension scores as the dependent variable. Pretest scores for comprehension yield an $R^2=.44247$ when entered alone in a stepwise regression; when discrepancy in comprehension level and materials is entered, $R^2=.45089$. The other variables did not account for significant amounts of variance. When grade, treatment condition and comprehension ability were entered, $R^2=.45189$.

A similar analysis for vocabulary posttest scores yielded an $R^2=.35980$ when the vocabulary pretest was entered; when discrepancy level was added to the equation, $R^2=.37937$. Grade also significantly increased the variance accounted for, $R^2=.38310$.

DISCUSSION

The results suggest that there is no essential difference between instruction patterned on a whole-group model compared to the traditional homogeneous ability groups when the outcome measures are standardized achievement tests. Although there is an interaction between treatment and vocabulary ability on the outcome measures, this effect is due to a nonlinear difference in only one cell and is not interpreted further.

The analyses also suggest that the discrepancy of the materials from the measured reading ability levels of the students accounts for a significant amount of variance in the scores. This suggests that a great deal of attention be given to the placement of students in materials, regardless of their ability or the instructional organization of the class.

The variables accounting for the most variance in the posttest measures were the pretest measures. For vocabulary, discrepancy and grade level also accounted for significant variance.

The simplest explanation for this is that there is too much variance within classrooms for the grouping pattern to have much of an impact. That is, in the comprehension analysis other variables contribute more variance and obscure potential effects of grouping and materials difficulty. Note, however, that this is not true for the vocabulary analyses, where materials difficulty does contribute significantly to the variance.

Ability does present the strongest effects in the analyses. That is, poor readers gain more than good readers. This can be explained, in part, by ceiling and floor effects, as well as regression to the mean; all of the students can be expected to score closer to the mean on the posttest. This translates into gains for the poor and losses for the good readers. Although these gains *may* be explainable as artifacts, they should not be ignored.

On the basis of this study, two conclusions seem warranted. Instruction in small groups compared to whole classes was not superior for the students in this study.

Consequently, any potential social benefits of whole-group instruction would suggest that whole-group instruction should be preferred to small ability groups. Difficult materials seem to have produced higher scores. The instructional implication is that when choices are to be made for instruction, more difficult materials should be selected rather than less difficult materials.

Several cautions should be observed in generalizing these conclusions. First, these subjects are not beginning readers. Students in primary grades (first or second) may have different needs and may respond differently to instruction and organization patterns. The present study did not address this issue; the conclusions from this study must be limited to upper elementary students. Second, these findings are limited by the outcome measures used in the analyses. The exclusive use of standardized test scores severely restricts the generality of the results. Finally, the type of teaching was not closely controlled. There may have been a great deal of "hybrid" teaching occurring. The teachers were not exclusively trained nor closely monitored. More research is needed to control these possibilities.

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READING INSTRUCTION IN SCIENCE AT THE TRANSITIONAL GRADES: BELIEFS VERSUS PRACTICE

Bonnie Konopak
Louisiana State University

Nancy Cothern
Indiana-Purdue University at Fort Wayne

Ellen Jampole
SUNY Cortland

Mary Mitchell
Centenary College

Rita Dean, Lennie Holomon, Mary Everett, Nancy Weems, and Leslie Arceneaux
Louisiana State University

According to Chall (1983), the transition from elementary to middle school marks a developmental break between *learning to read* (acquisition and fluency of reading skills) and *reading to learn* (use of skills as tools for learning content). Although the assumption had been that students would automatically transfer their newly acquired skills to expository text reading, research (e.g., Calfee & Curley, 1984) has shown that basic word recognition and comprehension skills are not sufficient for students to cope with more complex materials and reading tasks. As a consequence, content teachers are urged to consider both the reading difficulty of their texts and the reading sophistication of their students, and to provide guidance where the need is evident (Vacca & Vacca, 1989).

However, although research attention to content reading has increased in the past 10 years, its goals and instructional practices have yet to win wide acceptance by content teachers (O'Brien, 1988). Observational studies at the elementary level (Durkin, 1978–79, 1984) and at the secondary level (Hinchmann, 1987; Ratekin, Simpson, Alvermann, & Dishner, 1985; Smith & Feathers, 1983b) have shown an instructional emphasis on unguided, isolated practice, with text reading used as a means to "cover" the subject content. Further, survey/interview studies at the secondary level (Rieck, 1977; Smith & Feathers, 1983a) have found that neither teachers nor students involved in such activities view reading as an important learning tool.

The present study attempted to extend previous research findings by investigating two areas which had previously been unexamined. First, the researchers were interested in addressing the transition from elementary to middle school learning. The researchers were particularly interested in this transition because of differences by grade level in teachers and program emphases. That is, elementary school teachers are usually generalists and instruct in self-contained classrooms, while middle school teachers are content specialists and instruct in departmentalized programs. In this study, the researchers chose to focus on two grade levels—fifth and sixth—that represent the transition from upper elementary to middle school in the region where the study was conducted.

Second, the researchers chose science as a content area to examine due to students' reliance on text materials for learning but difficulties in comprehension and learning (Lloyd & Mitchell, 1989). Further, according to the 1986 NAEP *Science Report Card*, "distressingly low" achievement scores were found for 3rd-, 7th-, and 11th-grade students who had been tested. In addition, students at all three grade levels reported not taking a science class that year, and that for many who did take a class, instructional time appeared to be limited to and dominated by teacher lectures and textbook reading. Based on these findings, the researchers were interested in examining how reading was considered by teachers in science at the transitional grade levels.

In addition to grade level and content subject, the present study also differed from previous studies in its theoretical framework. Although earlier studies (e.g., Durkin, 1984; Ratekin, Simpson, Alvermann, & Dishner, 1985) had compared research-based instructional recommendations with actual classroom practices, this study also explored the relationship between teachers' beliefs about reading for content learning and how those beliefs were realized during instruction. This framework, adapted from Clark and Peterson (1986), involves two related domains: (a) teachers' thought processes, including theories and beliefs and their relation to teacher decision making; and (b) teachers' actions and effects, including both teacher and student behaviors, as well as student achievement. The premise underlying this framework is that there is a reciprocal relationship between the two domains: that is, teachers' actions are largely the result of their thought processes, which in turn affect teachers' subsequent actions. In this study, the focus was on the relations among beliefs about reading for science learning, lesson planning, and subsequent instructional activities.

Specifically, then, the purpose of this study was to examine how teacher beliefs and practices would vary according to their elementary or middle school roles in a reportedly difficult subject area. The general question guiding this investigation was, "How is reading considered and used by teachers of science at the transitional grades?" In particular, five important components of instructional practice were examined within this broad question. Adapted from Ratekin et al.'s (1985) study, these components included: (a) lesson purpose, (b) class organization, (c) instructional materials, (d) instructional activities, and (e) evaluation. Based on instructional recommendations made by content researchers (e.g., Readence, Bean, & Baldwin, 1989), these components became a basis for observation in the Ratekin et al. study. In the present investigation these components not only guided observations but also were a basis for post-observation interviews with teachers and randomly selected students.

METHOD

Participants

Participants were two fifth-grade teachers, each with one self-contained class, and two sixth-grade science teachers, each with one randomly selected departmentalized class. One fifth-grade teacher and the two sixth-grade teachers taught at different

Table 1

Professional Background of Teachers by Grade and Class

Background	5th/Lab	5th/Public	6th/Public-1	6th/Public-2
Years of Teaching Experience	28	4	26	24
Years at Present Grade Level	16	1	5	20
Highest Degree Held	Ed.S.	B.A.	M.S.	M.Ed.
Most Recent Reading Methods Course	1978	1978	1978	1963
Membership in Professional Organizations	yes	yes	yes	yes
Subscription to Professional Journals	yes	yes	yes	yes
Curriculum Determinant	school	state	state	state
Work with a Reading Specialist	(self)	no	yes	yes

public schools, whereas the second fifth-grade teacher taught at a university laboratory school. The lab school was deliberately chosen by the researchers as its primary purpose is to provide a model teaching/learning environment; the public schools were randomly selected from elementary and middle schools in the same school district. The four classes were similar in that they were heterogeneously grouped and consisted of 25–35 students.

Prior to observations, each teacher was asked to provide professional demographic information, as well as her beliefs and practices on reading and learning in the science classroom. Table 1 presents the professional demographic information; Table 2 presents the beliefs and practices on reading for science learning. As can be seen, the four teachers were similar in their interest in professional development but differed in their educational backgrounds and teaching experiences. In addition, although all believed in a variety of experiences during the learning process, they varied in their beliefs about the purpose and role of reading in the science classroom.

Materials and Procedure

Two researchers per class attended science lessons for 5 consecutive teaching days that constituted a complete science unit or subunit. Before the observations took place, each research team held interviews with the classroom teacher on her professional background and beliefs and practices. In addition, the researchers and teachers discussed the objectives and content of the upcoming lessons.

During the observations, the researchers wrote field notes, audiotaped the lessons, and examined pertinent materials. Generally, these materials included lesson plans (with both teacher and school/state components), textbooks and worksheets, supporting aids, student reports and projects, tests and quizzes, and any manipulatives used

Table 2

Beliefs and Practices Pertaining to Reading in Science by Grade and Class

Reading Components	5th/Lab	5th/Public	6th/Public-1	6th/Public-2
Role of Reading in Science Learning	develops knowledge of content and relations	gives information	gives information, stimulates ideas	gives information
Determine Student Reading Levels	achievement, other tests	oral reading, tests	reading teacher, experience	reading teacher, informal tests
Determine Text Level Difficulty	Fry Readability Formula	student failure to comprehend	experience	''comes leveled''
Accommodate Student Differences	student groupings	different materials/ methods	variety of experiences	oral readings, short readings
Prepare to Study New Unit	access prior knowledge, SQ3R	new vocabulary, projects	study guide	—
Prepare to Read New Unit	study vocabulary in context	study vocabulary in context	motivate, fun tasks	relate to students
Monitor Students' Learning	observe, quiz	quiz, study guides	participation, homework	questions, quiz
Follow-up Students' Learning	variety; writing	variety; hands-on	variety; skill building	variety; labs
Evaluation of Students' Learning	variety	variety	variety	variety
Flexibility in Decision-making	some	some	little/none	enough

for lab activities. The researchers did not participate in class lessons and collected their data as unobtrusively as possible.

Following all observations, each research team conducted separate interviews with the teacher and three randomly selected students on their perceptions of the immediately preceding unit. The interviews were structured around the five instructional components (i.e., lesson purpose, class organization, materials, activities, and evaluation) and how they were actualized in class. In addition, the teachers and students were asked to respond to what they felt were constraints on teaching/learning in the classroom. Data collection resulted in 15 hours of observations and interviews per class.

Data Analysis

Data sources included (a) pre-observation teacher interviews on professional background, beliefs and practices, and proposed lessons; (b) observations of 5 consecutive teaching days, including field notes and audiotapes; (c) materials used in conjunction with instruction; and (d) post-observation interviews with teachers and students. All data were analyzed using Miles and Huberman's (1984) concurrent flows of analysis: data reduction, data display, and conclusion drawing and verification. In this process the data were examined recursively and displayed in unordered and ordered matrices that were driven by the research question. Data sources were triangulated to validate an occurrence and to control for biases from other sources. Final interpretation was achieved following searches for meaningful patterns across, between, and within classes, involving the multiple perspectives of the whole research team.

RESULTS AND DISCUSSION

From the analysis, stronger patterns emerged across and within grade levels, rather than between grade levels. Generally, although reading was deemed important, planned, and used for study, reading instruction was not necessarily included. What instruction was observed usually dealt more with isolated skills than with internalization of subject content. Further, when examining the five instructional components, the following patterns appeared: (a) lesson purposes were both explicit and implicit; (b) organization was primarily whole class; (c) materials included textbooks, worksheets, and, for the fifth-grade classes, manipulatives; (d) activities included lecture with recitation and individual seatwork; and (e) evaluation varied from worksheets for one fifth- (public) and one sixth- (public-2) grade class, to worksheets, observations, and projects for the other fifth- (lab) and sixth- (public-1) grade classes.

In addition, when ordered by site, the teachers were ranked from 1 (highest) to 4 (lowest) on effective instruction. This included attention to the five instructional components, as well as to the students' learning. The fifth-grade lab teacher was ranked highest, followed by a sixth-grade (public-1), fifth-grade (public), and sixth-grade (public-2) teacher, respectively. As described in Table 3, the fifth-grade teacher who was ranked highest used a variety of settings and methods, addressed readiness and independence, and relied on multiple evaluations. The lowest ranked sixth-grade

Table 3

Reading Instruction Practices of Teachers Ranked 1 (High) and 4 (Low)

Practices	Teacher 1 (5th/Lab)	Teacher 4 (6th/Public-2)
Variety in Setting/Methods	*great variety:*	*little variety:*
	whole & small group discussions	whole class lecture
	effective use of A/V materials	ineffective use of class materials
	good questioning strategies	little or no questioning
Addressed Readiness/ Independence	*encouraged readiness/ independence:*	*readiness/independence not encouraged:*
	included supplementary readings	purpose of lesson inaccurate or not stated
	shared independent projects	activities completed as whole group
	provided live specimens	no monitoring of individual progress
	compared field notes	little organization in planning
	prepared organizational charts	limited use of reading and resources
Multiple Evaluations	*used variety of evaluations:*	*used limited variety of evaluations:*
	observation	worksheets
	questioning	tests
	worksheets	
	art	
	independent projects	
	tests	

teacher, on the other hand, demonstrated little variety in the five components and neither prepared for nor monitored students' learning.

Prior to observations, interview data indicated that three teachers focused on thinking and reading skills in science, such as classifying, observing, and inferencing. The fourth teacher (sixth/public-2), however, felt constrained by state guidelines to teaching process skills in isolation. In the post-observation interviews, all four teachers stated that they focused on concepts, process skills, and development of ideas. They felt that their most effective activities were concrete experiences such as labs and creative projects, as well as games and worksheets. All reported that these activities were appropriate in helping students think about and learn new information. In addition, class organization was limited to whole-group lecture and independent work, with class discussion as the focal activity. Finally, three of the four teachers felt that their instruction was most adversely affected by students with limited skills; the fourth teacher (fifth/lab) was most affected by outside visitors.

Students' post-observation interview responses both agreed and contrasted with the teachers' responses. All students stated that they had understood the purpose of the week's discussion, although few were able to articulate the specifics of the lesson. All thought that they had learned the material well, even though several had not performed well on end-of-unit assessment tasks. In addition, content and activities considered important by these students included information relevant to their own lives. This included a fifth-grade (lab) unit on classifying animals which the students were able to relate to their own pets, and a sixth-grade (public-1) unit on drug abuse which the students related to their own family and friends. Material not considered relevant included a fifth-grade (public) unit on cell division and a sixth-grade (public-2) unit on optical illusions. Finally, student misbehavior was cited as the major cause of interference to their classroom learning.

Given these findings, the four teachers appeared to vary in their consistency between what they stated as their beliefs and ideal practices and what their plans and instruction actually revealed. The fifth-grade lab school teacher showed a more consistent relationship than the other three teachers. As described in Table 2, she defined reading as a method of developing content and relationship knowledge and implemented materials and activities that generally supported this belief. Given her extensive teaching background and educational specialist status, this result is not surprising. Of interest was the sixth-grade (public-1) teacher ranked second; she also believed in reading as a learning tool and that guidance was necessary to facilitate student learning. Her instruction was constrained, however, by her strict adherence to school/state objectives and content, aptly demonstrated by her initialing and dating her curriculum guide when completing required objectives.

The fifth-grade (public) teacher ranked third had a narrow view of reading for science learning, as well as the role of reading instruction, and limited teaching experience; however, she attempted to facilitate learning through group work and hands-on experiences. The sixth-grade (public-2) teacher ranked fourth also had a narrow view of reading and reading instruction in the science classroom. Although pre- and post-observation interview data indicated that she felt her instructional decisions/activities were facilitative and appropriate, her actual practice did not support her statements.

This investigation indicates that, to some extent, teachers' thoughts and beliefs are critical and important aspects of their instructional effectiveness, thus supporting previous research (Duffy & Ball, 1986). Specifically, teachers plan and implement their decisions based on their view of the role of reading for science learning and how reading instruction should be carried out throughout the learning process. As pointed out by Clark and Peterson (1986), teachers' thoughts and actions can be profoundly affected by the task demands, as well as by the teachers' perceptions of these demands. Further, teachers may have greater or lesser opportunity to decide on and implement their beliefs; for example, teachers may be allowed less flexibility in planning due to curricula decisions made by other sources (school/district), as evidenced by one sixth-grade (public-1) teacher. Overall, as demonstrated in this study, teachers' thoughts on instruction/learning and reflective analysis following a lesson are critical when examining the classroom environment (Readence, McGee, & Konopak, 1989).

Although this research is limited by its brevity of observational period and the use of only four teachers and classrooms, the results generally confirm earlier research findings on the lack of reading instruction in a content subject. However, when ordered by site, greater distinctions are defined; again, the fifth-grade lab school teacher demonstrated more effective reading instruction than did the lowest ranked sixth-grade (public-2) teacher. Recommendations for future research include extending the observation period, probing for more information concerning beliefs and ideal practices, and examining other content areas for comparison. In addition, although the present study focused on research-based recommendations from reading specialists, future research could address recommendations from specialists in the content field.

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THE EFFECTS OF STRUCTURAL FACTORS OF EXPOSITORY TEXTS ON TEACHERS' JUDGMENTS OF WRITING QUALITY[1]

Beverly E. Cox
Purdue University

There is strong linguistic support for the notion that hierarchical organization and cohesive harmony represent stable variables that partly differentiate well from poorly written text in English (Cox, Shanahan, & Sulzby, 1990; Grimes, 1972; Halliday, 1985; Hasan, 1984; Langer, 1986; Meyer, 1975). In exposition (i.e., informative text), expert writers usually organize their ideas hierarchically or logically under a top level or overall organizing structure (often called a rhetorical predicate, Langer, 1986; Meyer, 1975). Children, however, tend to elevate lexical (sentence level) predicates, especially descriptive ones, to the top level as their organizing frames for exposition (Langer, 1986). Whatever the organizational structure, it is developed, elaborated, and tied together with cohesion devices that can express text redundancies in a particularly powerful manner through cohesive harmony interactions (Hasan, 1984). The power of cohesive harmony interactions comes from their multiple layers of repetitions. Specifically, the same or similar noun, verb, and functional (i.e., implicit case grammar role) information is repeated across multiple sentences in a text to form cohesive harmony interactions (see Hasan, 1984 for a complete description).

This study examines if and how teachers respond to these research-based structural aspects of text (hierarchical organization and cohesive harmony) when they judge writing quality. It is important to investigate this relationship for several reasons. First, knowing how to use cohesion and organization in their own writing is significantly related to children's greater reading achievement and writing quality (Cox et al., 1990). Consequently, reason suggests that young writers should be developing greater expertise with these structural aspects and teachers who conference with and evaluate young readers/writers should probably focus some attention on these meaning-making structures. However, little is known about whether teachers note or react to these important structural aspects in evaluating a child's writing. If they do not, it seems unlikely that they will attend to them either during reading or writing instruction time.

Second, this study is important because a child's attempts to develop a more sophisticated organizational structure may result in diminished cohesion (Cox & Stewart, 1989), possibly because the organizational structure requires more of the young writer's attention (e.g., LaBerge & Samuels, 1974). On the other hand, greater attention to text cohesiveness might result in less expert overall organization or the two might vary together. Though it is not yet clear how developing knowledge of organization and cohesion is sequentially interrelated in a child's development of literacy, it is important to understand how teachers respond to such variances as they evaluate children's texts.

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Third, because of discourse analysis's power to identify and evaluate cohesive and organizational aspects of text, it is intuitively appealing to suggest that elementary teachers should be given more technical linguistic and discourse analysis training. The validity of this suggestion, however, should be carefully investigated. It is important to understand if teachers who have had such training respond differently to texts that vary in organization and cohesion from those who have not.

Finally, both the technical training and time requirements suggest discourse analysis, per se, is impractical for use by classroom teachers. Typically, analyzing a text for its hierarchical organization and cohesive harmony requires two trained readers to independently read, analyze, and graph the text and then come together to compare their analyses and resolve differences. An important question remains, however. Would greater specific instruction or experience with these linguistic aspects make a difference in the way teachers respond to children's writing? As education moves toward more holistic assessment in language (Resnick, 1989), understanding and documenting what is being evaluated by teachers will help others understand and accept teachers' holistically based professional decisions.

Specifically, this study asks: (a) Are differences in technical linguistic training and discourse analysis experience related to teachers' judgments of writing quality? (b) Do teachers' judgments of writing quality align with those suggested by discourse analysis? That is, do teachers' judgments of quality appear related to differences in cohesion and organization? (c) How do teachers respond, in terms of assigning a writing quality rank, to variances in overall organizing structure (e.g., a lexical versus a rhetorical predicate) and to variances in microstructure (e.g., more or less cohesive harmony)? Specifically, do variances in these aspects relate to differences in writing quality decisions for either technically experienced or inexperienced readers? To help answer these questions, this paper compares technically (i.e., linguistically) experienced and inexperienced teachers' rankings of writing quality for elementary children's expository texts with differences in hierarchical organization and cohesive harmony identified through discourse analysis.

METHOD

Subjects

The subjects were 6 teachers with classroom experience ranging from 3 to 15 years. As native speakers, all were familiar with written English and all professed to read extensively for their own recreation and coursework. Three of these teachers were just beginning graduate studies after having taught for several years. Each of them had had only one undergraduate linguistics course several years prior. They had never engaged in any linguistic analyses. They were considered the technically inexperienced group.

The other three were former teachers who were graduate students at the end of their doctoral work. All had some recent experience in linguistics courses and linguistic analysis and so might be expected to be more sensitive to and knowledgeable about issues such as cohesion and hierarchical structure. They were considered the more technically experienced group.

Materials

The materials were 96 expository texts. To interpret the holistic scorings that are the focus of this paper, it is helpful to understand from whom and how these texts were obtained and how they differed in terms of cohesion and organization.

The texts were written by 48 children, 24 third graders and 24 fifth graders. The children were evenly divided between good and poor readers at each grade level on the basis of their normal curve equivalent (NCE) scores for reading comprehension on the Iowa Test of Basic Skills (Hieronymous, Lindquist, & Hoover, 1989). They were randomly selected from a median split subject pool with the NCE scores for good readers ranging from the 68th to 92nd percentiles and for poor readers from the 8th to the 32nd percentiles. The children were seen in two separate sessions at which an expository article (one on ants, one on big cities) was read and discussed along with other information the children knew. The children were asked to use any of this information to write reports for others about their same age who were interested in gathering and sharing information about these two topics.

A discourse analysis of the 96 texts confirmed that distinct differences in their hierarchical organization and in their cohesive harmony existed. To determine this, all texts were analyzed for hierarchical organization by (a) assigning all independent clauses (modified T-units) (Pappas, 1981) to a position in a tree structure, (b) identifying the type of predicate structures used (rhetorical or lexical) (Langer, 1986), and (c) calculating the proportion of well to poorly organized T-units both across each composition and within particular predicates. All texts were also analyzed for cohesive harmony by (a) constructing chains of identity or semantically related cohesion devices, including nouns and verbs (Halliday, 1985; Hasan, 1984), (b) identifying cohesive harmony chain interactions (Hasan, 1984), (c) calculating the proportion of each text's total words (tokens) which were involved in cohesive harmony interactions (Hasan [1984] calls this proportion a *cohesive harmony index* [CHI]), and (d) calculating the CHI of well-organized portions of each text and for particular predicates. Proportions were calculated for both cohesive harmony and organization to prevent bias data from the well recognized fact that better readers and writers generally write longer texts (e.g., Loban, 1963, 1976).

The discourse analysis revealed that these children used 189 description lexical predicates of which 62 were poorly cohesive (average cohesive harmony index [CHI] = .30) and 127 were strongly cohesive (average CHI = .73). They also used 32 rhetorical predicates. Twenty-five were very cohesively developed (average CHI = .84) and seven were weakly developed with cohesive harmony (average CHI = .22).

All analyses were conducted independently by two trained scorers. Interrater agreement ranged between 85% and 95%. All disagreements were resolved through discussion. Complete details of these analyses are available from the author.

Repeated measure ANOVAs showed grade, $F(1, 44) = 7.552$, $p < .05$ and reading level, $F(1, 44) = 17.760$, $p < .001$ were significant main effects for differences in hierarchical organization in the children's expository texts (Cox, Shanahan, & Tinzmann, in press). There was also a significant main effect of reading level, $F(1, 44) = 4.006$, $p < .05$ for greater use of cohesive harmony in exposition (Cox et al., 1990; Cox, Shanahan, & Tinzmann, in press); though counter to developmental expectations, no significant main effect of grade was found. However, it was assured that the texts varied significantly in hierarchical organization and cohesive harmony prior to holistic scoring.

Procedure

Prior to holistic scoring, the texts were typed and mechanical errors were corrected so that the readers would not focus on them rather than the meaning-making aspects of the texts. Then, the three technically experienced teachers met and discussed Myers (1980) holistic ranking procedures. Following his recommendations, they selected anchor (exemplary) texts for each rank and decided on four general criteria to guide their evaluations. These criteria were: (a) Was the writing clearly recognizable as exposition? (b) Was the piece clearly and appropriately organized for exposition? (c) Did the information flow smoothly? and (d) Were connectives used appropriately? The technically experienced group independently ranked all 96 expository texts holistically using a writing quality scale of 1 (poorest) to 4 (best). Interscorer agreement was .91. All disagreements were resolved by appealing to the third ranker or, if needed, through discussion.

Later, the three technically inexperienced teachers met and were asked to independently grade all 96 texts on a writing quality scale of 1 (D or F, poorest) to 4 (A or best). No training in holistic ranking or discussion of Myer's procedures, criteria, or anchor texts was provided. The teachers were simply asked to grade the papers according to how well written they considered them to be as reports, much as they would grade reports written in their own classrooms. Interscorer agreement was .86. As before, all disagreements were resolved by appealing to the third ranker or, if needed, through discussion.

Statistical Analysis

Pearson product moment correlations were calculated (a) between the technically experienced and inexperienced groups holistic rankings of the texts, and (b) between each group's rankings and the cohesion and organization indices established by the discourse analysis for each text. Significance was $r = .28$, $p < .05$ for 48 cases.

RESULTS AND DISCUSSION

All three questions were clearly answered. First, differences in technical linguistic training and discourse analysis experience do not seem related to teachers' judgments of writing quality. The technically experienced and inexperienced groups ranked all texts similarly ($r = +.83$, $p < .01$). Where differences occurred between the two groups, they never exceeded one rank. With these two groups of teachers, technical training and experience did not alter the way they evaluate children's expository writing.

Second, both groups of classroom teachers' judgments of writing quality did align with those suggested by discourse analysis. Both the experienced and inexperienced groups' rankings were significantly correlated with a text's being more well-organized ($r = +.61$, $p < .01$ and $r = +.64$, $p < .01$ respectively) and using more cohesive harmony ($r = +.39$, $p < .01$ and $r = +.37$, $p < .01$ respectively).

Third, both groups of teachers tended to respond to differences in structural sophistication in similar ways. For example, both groups of teachers tended to rank texts organized around lexical description predicates below average in quality (average rank, 2). Average to lower levels of cohesive harmony (average CHI = .53) in description lexical predicates generally earned below average quality rankings (1 or 2) from both groups. However, both groups tended to rank descriptively organized texts above average (3 or 4) when the texts were developed with considerably more cohesive harmony (average CHI = .73). The simpler and less appropriate overall organizing structure (viz., a lexical description predicate) was ranked above average in writing quality, largely when the text was developed in a highly cohesive manner.

In contrast, when a child attempted a more sophisticated organizing structure (viz., a rhetorical predicate) whether or not it was developed with a high level of cohesive harmony, both the technically experienced and inexperienced readers tended to rank it above average in quality (average rank, 3). For example, seven texts that attempted a response rhetorical predicate and had an average cohesive harmony index of only .17 still tended to be ranked above average (3).

Obviously, readers respond to other aspects of the text beyond cohesion or organization. However, the response to cohesion within organizational structure is particularly interesting and deserving of further research. One interesting question is why these readers consistently ranked attempts at more sophisticated rhetorical predicate structures so highly, even though they were poorly developed cohesively. One possible explanation for this observation is that both groups of readers intuitively and consistently responded to variations in structure that suggested developing knowledge about written language in young authors. On the one hand, they recognized when a more sophisticated and appropriate organizing structure was attempted and rewarded this in these young writers with a higher score regardless of the text's cohesive development. On the other hand, the less appropriate lexical description predicate was only rewarded with higher marks when it was developed with extensive cohesive harmony.

Another explanation for these readers' high rankings of rhetorical predicates with little regard for their cohesive development is that they were more familiar with overall organization and so saw it as more important. It is likely that overall organizing structures receive more attention in school instruction than do cohesive patterns, especially in the sense of cohesive harmony. Consequently, both groups of teachers were more sensitive to the more sophisticated predicates than to differences in cohesive harmony, and so, ranked the rhetorical predicate texts higher regardless of their cohesive development. This could be interpreted as an unfortunate lack of breadth in their knowledge of important text variables related to literacy development. However, both groups' responses to the use of cohesive harmony in the description predicate suggests the first interpretation is more likely.

Correlational data must always be treated cautiously, especially with only a few teachers having ranked the texts, but there is a clear suggestion that teachers who are native speakers, familiar with written English, do refer to a text's organizational and cohesive structure in appropriate ways when they evaluate children's writing. It is important for teacher educators to understand how generalizable this finding is and how this teacher-knowledge develops. Was it these teachers' common background as native and literate speakers of written English that enabled them to evaluate children's expository texts in such similar ways? Was it also this common knowledge base that allowed both groups to recognize and respond so similarly to a child's divergence from expert models, possibly treating these differences quite supportively as developing knowledge of English text structures? The implication that seems clearest at this point, is that greater experience with written English text rather than technical structural linguistic training may be important in teacher education.

Although hierarchical organization, predicate structures, and cohesive harmony may be complex and technical structural aspects of written language, they may also be like Vygotsky's (1962) spontaneous or everyday concepts for teachers who are familiar with written English. Specifically, these complex aspects may be learned through experience in reading and writing text to construct meaning. Future research needs to investigate whether the findings and interpretations reported in this study hold with greater numbers of teachers, across different ethnic and cultural groups, and with preservice teachers, because what is found with these diverse groups should suggest important directions for teacher education.

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A LONGITUDINAL STUDY OF PRESERVICE TEACHERS' KNOWLEDGE STRUCTURES

Beth Ann Herrmann
University of South Carolina

Our image of the effective teacher has changed considerably. Today the effective teacher is viewed as a "thoughtful professional" (Peterson, 1988), adaptive to contextual and situational classroom demands (Duffy, 1989), able to confront cultural realities of schooling and engage in critical self-examination, thoughtful discourse, conceptually based decision-making (Clark & Peterson, 1986) and reflection (Schon, 1983). The knowledge structures of "thoughtful professionals" are believed to be organized, coherent and highly integrated, which facilitates adaptive, reflective thinking (Herrmann & Duffy, 1989).

Teacher educators generally assume that preservice teachers' knowledge structures become like those of thoughtful professionals as they complete a teacher education program, but little is known about the longitudinal development of preservice teachers' knowledge structures. Based on recent cognitive psychology research (Fredericksen, 1984; Schuell, 1986), expert-novice work (Chi, Glasser, & Rees, 1982) and recent research on teachers' knowledge structures (Herrmann, 1988, 1989; Roehler et al., 1987), this study describes the longitudinal development of the knowledge structures of three preservice teachers (Students A, C, and G) as they move through three phases of a teacher education program: Phase I includes a teacher effectiveness course and a practicum course, Phase II includes various methods courses, and Phase III includes 15 weeks of student teaching. Two research questions were posed: (a) Do preservice teachers' knowledge structures become more extensive and coherent as knowledge is acquired in teacher education courses? (b) Do preservice teachers' knowledge structures become more integrated as knowledge is acquired across various teacher education courses?

This paper describes the knowledge structure development of the preservice teachers across the teacher effectiveness course, the practicum course (Phase I), a reading methods course (Phase II), and student teaching (Phase III).

METHOD

Subjects

Subjects were 1 female Elementary Education major and 2 female Early Childhood Education majors beginning Phase I of a teacher education program in a large southeastern university. These students were randomly selected from among 20 juniors enrolled in the teacher effectiveness course taught by the researcher. At the beginning of the study all 3 students were 22 years old, they all had a grade point average of 3.2 or better and they had all completed the same basic required courses (e.g., English, math, history, and foreign language courses). The students also had similar backgrounds; they all three attended elementary and secondary schools in the southeast and had extensive babysitting experiences. All 3 subjects came from families of non-educators.

Context

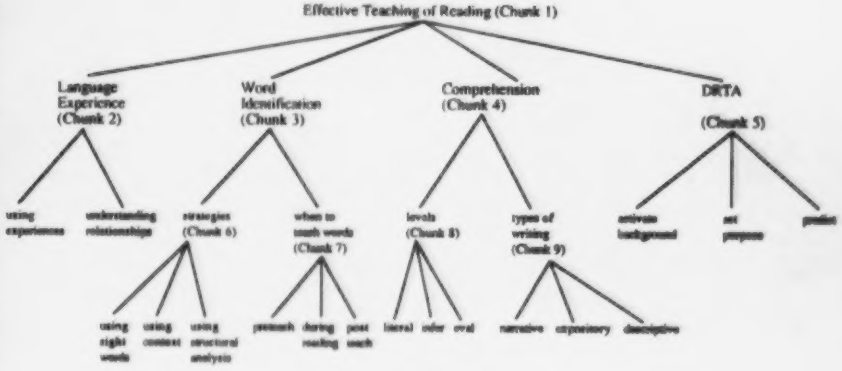
Data reported here were collected within the context of four 15-week courses: a teacher effectiveness course, a practicum course, a reading methods course, and student teaching. The researcher taught the teacher effectiveness course in which all 3 subjects were enrolled. The course focused on effective classroom instruction, educational settings, and student learning. Sample topics included teacher instructional behaviors and student outcomes, teacher thinking and decision-making, and school effectiveness. Students participated in field-based school observations. The practicum course was taught by Elementary Education and Early Childhood faculty. Student A was enrolled in the Elementary Education section of the course; students C and G were enrolled in the Early Childhood Education section. Both sections of the course focused on general classroom methodology, materials, and technology. Sample topics included learning environments, child behavior, and instructional planning. Students participated in guided classroom observations and developed lesson plans and learning activities. The researcher taught the reading methods course in which all 3 subjects were enrolled. The course focused on the reading process and methods for developing effective reading. Sample topics included literacy, metacognition, and the literate environment. Students conducted approximately 12 small-group tutorial sessions. During the 15-week student teaching experience the students participated in approximately 85 clock hours of supervised classroom teaching as well as weekly seminars taught by Elementary Education and Early Childhood Education graduate students.

Materials

Subjects constructed an ordered tree (Naveh-Benjamin, McKeachie, Lin & Tucker, 1986) at the beginning of each course, at the semester midpoint, and at the end of each course except for student teaching when pre- and post-ordered trees were constructed. This technique allowed subjects to display how concepts included in their knowledge structures were tied together into a network of relationships. Subjects also constructed ordered trees in two earlier phases of the study (see, Herrmann, 1988, 1989).

Procedures for Constructing Ordered Trees

In the present phase of the study, as previously, subjects listed, categorized, and labeled words and phrases about effective teaching, arranging categories to show relationships among groups. After construction of each ordered tree, subjects recorded


Effective Teaching of Reading (Chunk 1)
Language Experience (Chunk 2)
Word Identification (Chunk 3)
Comprehension (Chunk 4)
DRTA (Chunk 5)
using experiences
understanding relationships
strategies (Chunk 6)
when to teach words (Chunk 7)
levels (Chunk 8)
types of writing (Chunk 9)
activate background
set purpose
predict
using sight words
using context
using structural analysis
preteach
during reading
post teach
literal
infer
eval
narrative
expository
descriptive

Numerical Measure

	Raw Score	Rating
Concepts	27	3
Chunks	9	2.5
Average Number of Concepts Per Chunk	3	8.5
Horizontal Levels of Chunks (3) and Chunks at the Widest Point (4)	7	3

Overall Numerical Score = 4.3 ($\bar{X}$ Rating Score)

Coherence Measure

	Raw Score	Rating
Coherent Chunks	8 out of 9 (89%)	8.9
Coherent Vertically Extended Sequences	16 out of 17 (94%)	9.4

Overall Coherence Score = 9.2 ($\bar{X}$ Rating Score)

Figure 1. A sample ordered tree about effective teaching of reading.

on audiotape and/or wrote a description of relationships among concepts and how specific aspects of the teacher education program influenced their thinking. Figure 1 is a sample of one subject's ordered tree.

Procedures for Analyzing Ordered Trees

Extensiveness and coherence. A numerical measure and a coherence measure adapted from Naveh-Benjamin et al. (1986) and validated by Roehler et al. (1987) were used to judge extensiveness and coherence of the ordered trees. For the numerical measure, the following were counted: (a) concepts, (b) chunks (clusters of concepts), (c) the average number of concepts per chunk, and (d) a combination of horizontal levels of chunks and chunks at the widest point. These criteria were used because earlier studies of experts' and novice learners' ordered trees showed that novices' ordered trees varied greatly for each of these categories, whereas experts' ordered trees were structurally similar. Figure 2, published previously in Herrmann (1989), shows a standard 10-point rating scale based on experts' ordered trees used to convert the numerical scores to ratings which were averaged to obtain an overall numerical score.

To illustrate how the numerical measure was used, consider the sample ordered

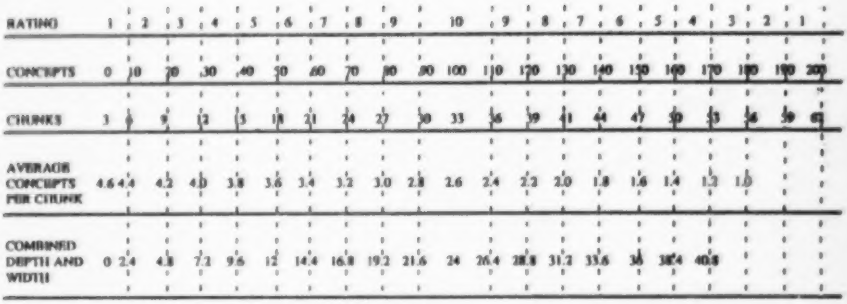

RATING
1 2 3 4 5 6 7 8 9 10 9 8 7 6 5 4 3 2 1
CONCEPTS
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200
CHUNKS
3 6 9 12 15 18 21 24 27 30 33 36 39 41 44 47 50 53 56 59 62
AVERAGE CONCEPTS PER CHUNK
4.6 4.4 4.2 4.0 3.8 3.6 3.4 3.2 3.0 2.8 2.6 2.4 2.2 2.0 1.8 1.6 1.4 1.2 1.0
COMBINED DEPTH AND WIDTH
0 2.4 4.8 7.2 9.6 12 14.4 16.8 19.2 21.6 24 26.4 28.8 31.2 33.6 36 38.4 40.8

Figure 2. Rating scale for determining ratings assigned to numerical categories.

tree shown in Figure 1. This ordered tree contains: (a) 27 concepts, (b) 9 chunks, (c) an average number of 3 concepts per chunk, and (d) a combination of horizontal levels of chunks and chunks at the widest point of 7. An overall numerical score was determined by averaging ratings assigned to each of these categories.

The coherence measure was used to determine the extent to which relationships between concepts were logical. This measure was employed because in earlier studies novices' ordered trees varied greatly in terms of logical relationships established among concepts, whereas experts' ordered trees did not. For this measure, relationships within individual chunks and across vertically extended sequences of concepts were scored following a two-step procedure. First, based on students' descriptions, chunk coherence was determined by examining relationships between concepts included in each individual chunk. For each chunk in which relationships depicted among concepts were logical, one point was awarded. Percentage of coherent chunks was computed and converted to a rating (e.g., 94% = 9.4). Second, coherence across vertically extended sequences of concepts was determined by examining relationships among concepts included in each vertically extended sequence; one point was awarded for each sequence containing logical relationships among concepts. Percentage of coherent vertically extended sequences was computed and converted to a rating. An overall coherence score was obtained by averaging the two coherence ratings.

To illustrate how the coherence measure was used, consider again the sample ordered tree shown in Figure 1. The figure shows that 89% of the individual chunks and 94% of the vertically extended sequences (e.g., effective teaching of reading → language experience → using experiences) were judged to be coherent. Chunk 6 was judged to be incoherent because the grouped concepts included in the chunk (strategies, using sight words, using context and using structural analysis) are illogically connected since using sight words was not considered to be a strategy. The percentages and ratings assigned to each coherence category and overall coherence score for the sample ordered tree also are shown in Figure 1.

Two graduate students conducted the coherence rating. First, following conventions established during training, each rater independently scored each tree. Second, raters discussed discrepant scores until 100% agreement was established.

Integration. Each student's final ordered trees from each of the four courses were compared to determine the extent to which knowledge acquired from the courses was integrated. The ordered trees were examined to determine the extent to which two knowledge integration criteria were met: (a) three or more chunks repeated across the final ordered trees, and (b) a combination of newly acquired concepts and concepts acquired in earlier courses included in each repeated chunk.

RESULTS

For this paper, 27 ordered trees were analyzed. From phase I, final teacher effectiveness course ordered trees, which served as a base line measure of each student's knowledge structure, and the practicum course ordered trees were analyzed. From Phase II, reading methods course ordered trees were analyzed, and from Phase III, student teaching ordered trees were analyzed.

Changes in Extensiveness and Coherence

Overall numerical and coherence scores were studied to identify patterns of change in each student's knowledge structure (Table 1). An erratic pattern emerged across Student A's numerical scores, indicating inconsistent change in the extensiveness of her knowledge structure. The numerical scores of Students C and G are consistently low, indicating little change in the extensiveness of their knowledge structures. Although coherence scores for all three students tended to be higher than their numerical scores, an erratic pattern emerged across all three students' coherence scores, indicating inconsistent change in the organization and coherence of their knowledge structures. For example, Student A's coherence scores dropped off during the practicum course and did not pick up until the end of the reading methods course. On the other hand, Student C's coherence scores were fairly high during the practicum course and quite high during the reading methods course, but her coherence score was considerably lower at the end of student teaching. Student G's coherence scores were higher during the practicum and student teaching than they were during the reading methods course.

Evidence of Knowledge Integration

The students did not repeatedly use three or more chunks when constructing final ordered trees. Instead, each student's final ordered tree contained only concepts acquired in the course for which the ordered tree was constructed.

DISCUSSION

Findings from this study generally do not support the hypothesis that preservice teachers' knowledge structures become more organized, coherent and integrated as they complete a teacher education program. Rather, these results suggest that as preservice teachers move through a teacher education program, they develop rather limited, course-specific knowledge structures, fairly well organized and coherent dur-

Table 1

Overall Ordered Tree (OT) Numerical and Coherence Scores

	Teacher Effectiveness Course	Practicum Course			Reading Methods Course			Student Teaching	
	OT#3	OT#1	OT#2	OT#3	OT#1	OT#2	OT#3	OT#1	OT#2
Overall Numerical Scores									
Student A	7.8	4.5	7.6	2.8	6.8	3.0	5.8	3.9	2.3
Student C	5.0	1.8	2.4	3.0	2.9	2.5	2.4	1.8	1.8
Student G	2.4	2.0	3.6	1.8	2.6	3.6	4.0	3.1	3.5
Overall Coherence Scores									
Student A	7.1	9.3	8.7	7.5	6.3	6.7	9.7	8.9	10.0
Student C	6.5	9.0	7.2	8.9	10.0	10.0	10.0	9.0	6.8
Student G	9.0	7.0	9.8	10.0	7.7	8.2	8.2	10.0	10.0

ing courses, but nonintegrated across an entire teacher education program. Three possible reasons why these preservice teachers' knowledge structures developed the way they did are explored below.

Lack of Cohesion and Integration

Most teacher education programs lack cohesion and integration across curricula (Lanier & Little, 1986). Courses tend to be taught by faculty in several departments, making it difficult to coordinate individual efforts into an integrated program (Goodman, 1988). The preservice teachers in this study experienced an isolated, course-by-course teacher education curriculum taught by faculty from various program areas, which may be one reason why they experienced difficulty with knowledge integration.

Lack of Attention to Teacher Conceptual Change

Most teacher educators strive to help preservice teachers develop organized and coherent knowledge structures about teaching, but in most teacher education courses effort is made to develop specific content and pedagogical knowledge (Wilson, Schulman & Rickert, 1987) with little emphasis on overall teacher conceptual change. The courses in which the preservice teachers in this study were enrolled tended to emphasize content and pedagogical knowledge relative to each course with little effort to establish explicit connections between new concepts and previously learned concepts.

Lack of Emphasis on Becoming a "Thoughtful Professional"

Most teacher education programs are still grounded in traditional themes of teacher passivity, teacher compliance, and teacher behaviors associated with process-product research findings (Anderson, Evertson, & Brophy, 1979) rather than current themes of teacher-student interaction, adaptiveness, reflection, creativity, experimentation and conceptually based decision-making associated with contemporary research on teaching (Clark & Peterson, 1986; Peterson, 1988). For the most part, the preservice teachers in this study were provided with information and experiences grounded in "process-product" criteria for effective teaching such as drill and practice procedures, mastering specific teaching behaviors and standard operating procedures, rather than criteria for becoming a thoughtful professional, such as understandings of complex classroom social systems and conceptually based adaptive decision-making. This may explain why the preservice teachers' knowledge structures tended to be more procedural, such as the knowledge structures of teaching technicians, rather than organized, coherent and highly integrated, such as the knowledge structures of thoughtful professionals (Roehler et al., 1987).

SUMMARY AND CONCLUSIONS

This study represents an initial exploration of the longitudinal development of the knowledge structures of three preservice teachers as they completed a three-phase teacher education program. While the results of this study may not be reflective of the general population of students enrolled in Colleges of Education, findings suggest that the preservice teachers developed procedural, nonintegrated, course-specific knowledge structures rather than organized, coherent and highly integrated knowledge structures. A general lack of cohesion across the teacher education program in which these students were enrolled, as well as a lack of emphasis on teacher conceptual change and the teacher as thoughful professional may have heavily contributed to the technician-like development of the preservice teachers' knowledge structures.

These results have implications for teacher educators, teacher education research and teacher education reform. First, teacher educators need to break the faculty tradition of not engaging in collaborative discourse and coordinate individual faculty efforts into an integrated program of study that emphasizes overall teacher conceptual change and cohesive themes of conceptually based professionalism. Second, teacher education research needs to explore the effect of integrated teacher education programs on the development of preservice teachers' knowledge structures. Finally, teacher education reform efforts need to shift from focusing on surface-level academic issues such as degrees, majors, length of programs, grade point averages, test scores and programmatic issues to focusing on deeper issues such as the quality of instruction provided across teacher education programs.

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A COMPARATIVE STUDY OF THE TEACHING EFFECTIVENESS OF INFLUENTIAL AND NONINFLUENTIAL TEACHERS AND READING COMPREHENSION DEVELOPMENT[1]

Robert B. Ruddell
University of California, Berkeley

Marilyn E. Draheim
University of the Pacific

Judith Barnes
University of California, Berkeley

Our understanding of the relationship between teaching effectiveness and comprehension development is of central importance to the improvement of literacy skills for students at all levels of education. The centerpiece for this understanding is found in the role of the teacher in directing instruction (Duffy, 1982; Durkin, 1978–79; Ruddell & Harris, 1989); the current study focuses on teaching effectiveness in developing reading comprehension. Specifically, the study examines instruction implemented by influential and noninfluential teachers.

An influential teacher is that special person whom we recall in a vivid and positive way from our academic years (Ruddell & Haggard, 1982; Ruddell, 1983). We can often remember the name of influential teachers, their grade level, and even their personal characteristics and teaching style. Most of us have been fortunate enough to have had one or more such teachers in our academic experience. In fact, research (Ruddell, 1983; Ruddell & Kern, 1986) suggests that high achievers average three, and low achievers average one and one-half such teachers from the 30 to 40 teachers they encounter between kindergarten and Grade 12.

An influential teacher is defined as a teacher identified by a former student as having had a major impact on the academic achievement and/or personal life of that student (Ruddell & Haggard, 1982). Previous research (Ruddell, 1983) on influential teachers, based on responses from former students, revealed five distinguishing characteristics: uses motivating and effective teaching strategies (45%); helps with personal problems (21%); creates a feeling of excitement about the subject matter content or skill area (15%); reflects a sense of personal caring about the student (14%); and demonstrates adjustment of instruction to learner need (5%). The responses of high and low achievers revealed nearly identical patterns across the five areas, indicating that regardless of achievement level, these students perceived their influential teachers in a very similar way. Most educators would perhaps suggest on an intuitive basis that these student responses reflect characteristics of highly effective teaching and that such teaching should, in turn, produce higher achievement levels. We wondered if influential teachers would actually teach differently from noninfluential teachers and if, in fact, they would produce higher reading achievement levels.

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[1] This paper was presented at Symposium 106, Reading and Learning from Text in the Classroom: The Teacher Variable. This symposium was dedicated to the memory of the late Professor Harry Singer, University of California, Riverside.

Three purposes thus guided the design of the study. These were: first, to identify instructional characteristics of influential teachers in contrast to noninfluential teachers during reading comprehension instruction; second, to examine the way in which these teachers develop instructional goals, instructional strategies, and monitor student responses during comprehension instruction; and third, to compare primary-grade student reading achievement in influential teacher classrooms with that in noninfluential teacher classrooms.

The rationale for the study is based on the Interactive Instructional Model of the reading process (Ruddell & Kern, 1986; Ruddell & Speaker, 1985) which is highly compatible with the Singer interactive model of learning from text (Singer, 1987). In both models the teacher is conceptualized as the critical decision maker, prior to and during the instructional episode (Dreher & Singer, 1989). Our model (Ruddell & Kern, 1986) proposes that the effective teacher creates a highly motivating *Instructional Environment* that actively engages the student through language use, instructional strategies, and the use of text-based meaning cues. This environment activates the student's *Knowledge Control*—a sort of mental switchboard—that enables the student to set a clear goal direction (affective state) and instructional plan (cognitive state) for the lesson, and also helps the student monitor whether or not the goal is being reached and the plan is working (metacognitive state). The student's goal and plan, in turn, directs the student's memory search for knowledge and experience-based schemata using *Prior Knowledge and Beliefs* relevant to the content being read or discussed. Finally, the interaction of these processes leads to the *Instructional Product*, ranging from comprehension to new knowledge.

It was our expectation, based on the Interactive Instructional Model, that influential teachers would demonstrate more effective use of these instructional components than would noninfluential teachers. We thus hypothesized: first, that the influential teachers would exhibit significantly higher levels of performance on the *Classroom Interactions Rating Scale* (Ruddell & Haggard, 1982), accounting for these model components, than would the noninfluential teachers; second, that the detailed analysis of video recorded lessons would reveal a more precise use of the *Knowledge Control* component, in the form of instructional goals, plans, and monitoring, by the influential teachers; and third, that reading achievement for the primary-grade students in the influential teacher classrooms would be significantly higher than reading achievement for students in noninfluential teacher classrooms.

METHOD

Our student and teacher sample for the study was based on an extensive data base collected 8 years before the present study. A research project studying the impact of inservice training on teacher and student performance had been directed by the first author of this study, over a year-long period, in a primary-grade school in a West Coast metropolitan city. This research project used extensive videotaping of the 24 teachers in the school, under carefully controlled conditions, and standardized reading achievement tests had been administered to the 522 students, kindergarten through Grade 3.

Eight years after the development of this data base student records were examined in the school district in the attempt to identify the former students in the year long study. Our search revealed that 132 students were currently enrolled. A questionnaire was designed to facilitate the identification of teachers who were influential in the academic careers of these students. Each student was asked to identify the teacher or teachers who had significantly influenced the academic and/or personal life of the student in the present and in previous years of schooling, assuming such a teacher existed. Our analysis of student responses revealed 79 influential teachers from the primary grades through the junior high and high school levels, with many teachers identified by more than one student. All students who identified influential teachers specified the teacher's name, grade level, content area taught, characteristics of the teacher, and the academic or personal influence of that teacher.

From the questionnaire 4 of the 24 teachers in the original teacher population were identified by two or more students as influential teachers. These four teachers thus constituted our sample of influential teachers. From the 20 teachers remaining in our original teacher population, 4 were selected at random to constitute our noninfluential teacher sample. The instructional samples selected for analysis consisted of a video recording which had been developed in all classrooms in September of the school year. Each teacher, kindergarten through Grade 3, had been asked to use the children's literature selection, *Alexander and the Windup Mouse*, by Leo Lionni, as they would normally use it in their classroom to develop comprehension skills. A group of 6 students had been selected at random from each classroom for the presentation, thus providing for a range of achievement levels. The lesson for the 8 teachers averaged 20 minutes in length with a range from 15 to 26 minutes.

Two types of analysis were used in our study of the instructional episodes. The first analysis, related to the first hypothesis of the study, used the *Classroom Interaction Patterns Scale*. This scale was based on an extensive research review of teaching effectiveness (Ruddell & Haggard, 1982; Ruddell, 1983), and examined five instructional components each with a scaled rating from 7 (highly descriptive) to 1 (not descriptive). These components were: (a) *Classroom Communication*, defined by teacher-student interaction patterns, receiving-caring, clarification-resolution, and awareness of student expectations-performance; (b) *View of Self*, defined by sense of self, enthusiasm, locus of control, and control sharing; (c) *Management Style*, defined by sense of purpose and goal orientation, motivation and cooperation, timing-pacing, and flexibility; (d) *Problem Solution Approach to Learning*, defined by intellectual curiosity, attitude toward learning, sensitivity to teachable moments, and questioning strategies and response patterns; and (e) *Teaching Effectiveness*, defined as the mean of the four factors above. Observations of the influential and noninfluential teachers were completed independently by two trained raters with an interrater reliability of .95. The Wilcoxon Two-Sample test, a nonparametric test, was used to test for statistical significance (Marascuilo & McSweeney, 1977). The analysis was one-tailed and assumptions for this test of independence of observations within and between samples were met.

Our second analysis of the instructional episodes was descriptive in nature and focused on the second hypothesis of the study concerned with effective use of *Knowledge Control* components in comprehension development. The components of the Ruddell and Kern model of interactive teaching (1986) consisted of *Goal* (i.e., teaching objective, motivation), *Plan* (i.e., instructional strategy, comprehension levels used), and *Monitoring* (i.e., discourse strategy providing student feedback and encouraging self-monitoring) (Ruddell & Harris, 1989). The content of these categories was inferred from the enacted data observed in the videotapes based on Erickson's microethnographic approach to the analysis of classroom teaching encounters (Erickson, 1982). Descriptors for comprehension levels used were derived from the Ruddell taxonomy of comprehension/thinking levels (1978) and Rosenblatt's theory of literary transaction (1985). These levels are: *factual* (i.e., literal recall of information); *interpretive* (i.e., manipulation of information to develop new meaning); *applicative* (i.e., transfer of information and meaning to a new situation); and *transactive* (i.e., encouraging the reader to become one with the meaning of the text or experience). This analysis was conducted by two trained observers with an interater reliability of .90, and comprised the major descriptive part of the study.

Student achievement test data, related to the third hypothesis of the study, were collected in September, at the beginning of the school year, and in May, at the conclusion of the year. The Metropolitan Readiness Test, Forms A and B, was administered to students in kindergarten and grade one, the ETS Co-Operative Primary Battery consisting of Reading Comprehension and Listening Comprehension (Forms 12B and 23B) was used with students at Grades 2 and 3. Gain scores were calculated for students in the influential and noninfluential classrooms. Because the classrooms had combined Grades 2 and 3 for cross-grade grouping instruction, the test data for students in these grades were combined. By combining the test scores the separate effects of uncontrolled variables that could interact unpredictably were minimized (Issac & Michael, 1981). The gain scores were computed and contrasted for statistical significance using one-way ANOVA with each analysis tested at the .05 level. The assumptions of the independent observations and approximately equal variance were met.

RESULTS

Instructional Characteristics of Teachers

Our findings revealed distinct and significant differences favoring the influential teachers on each of the five variables analyzed using the *Classroom Interaction Patterns Scale*. As noted in Figure 1, significant differences were found for classroom communication ($p<.01$), view of self ($p<.02$), management style ($p<.03$), problem solution to learning ($p<.02$), and overall teaching effectiveness ($p<.02$).

These findings provide strong indication that the teaching effectiveness of the

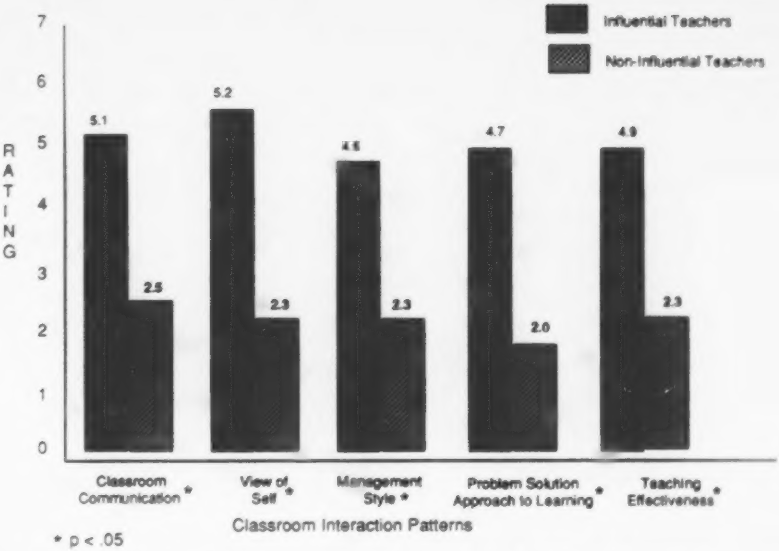

Figure 1. Teacher effectiveness: Ratings of influential and noninfluential teachers.

influential teachers was higher than was the effectiveness of the noninfluential teachers.

Knowledge Control Effectiveness

Our descriptive analysis of *Knowledge Control* effectiveness revealed that the two groups of teachers developed instructional goals, plans, and monitoring in distinctly different ways.

Instructional goals. The ability to develop instructional goals operationalized in the form of objectives and motivational strategies was markedly different. The influential teachers, regardless of individual teaching styles, appeared to have a clear understanding of how to identify and select objectives geared toward developing an in-depth understanding of the reading selection. Story motivation used by these teachers relied heavily on internal drive motivations such as intellectual curiosity, self-understanding, aesthetic appreciation and problem resolution in the story development, and only rarely used the external motivation of teacher expectation. The use of internal motivation, self-understanding, is illustrated in the question, "Would you rather be a real mouse (like Alexander) or a windup mouse (like Willy)? Why?"

By contrast, the noninfluential teachers' objectives were often confined to developing literal understanding of the story using external motivation, that of pleasing the teacher, by providing a teacher preselected and text-based literal response, for example, "OK, so which mouse here always gets screamed at?"; "Why were they (the toys) in the box?"

Instructional plans. A second difference was found in the degree to which the lesson's goals were related to and implemented in the plan of story development. All of the teachers, influential and noninfluential, read the story to the students and asked questions during and after the reading. The comprehension levels stimulated by the questions, however, differed noticeably between the two groups of teachers. The influential teachers used interpretative and applicative type questions predominantly; for example, "Why do you think Alexander (the real mouse) changed his mind about being just like Willy (the toy mouse about to be thrown away)?", "Do you think the little girl really loved that windup mouse? Why?", "What do you think the author was trying to tell people?" Factual questions occurred primarily for clarification of meaning when needed.

The noninfluential teachers, on the other hand, concentrated heavily on literal questions designed to verify students' ability to provide accurate factual recall of selected parts of the story. Although these teachers attempted, on occasion, to arouse the students' curiosity or develop aesthetic qualities in the story, they rarely pursued a line of questioning to develop these features. For example, one teacher asked, "What was Alexander's big problem?" A student responded, "He wanted to be loved." The teacher then nodded approval and proceeded to an unrelated question concerned with the nature of the lizard's magic pebble, rather than pursuing the student's response to consider ways we feel loved and express love, the central theme of the story.

Instructional monitoring and discourse strategies. The third area of difference between the influential and noninfluential teachers was found in monitoring and discourse strategies used to guide the development of the students' comprehension. The influential teachers appeared to have established an instructional goal based on the central story theme. They then gently, but firmly, used planned discourse strategies to guide the interaction to reach this goal. These teachers provided opportunity for the students to express their ideas completely and listened attentively to student responses. Student responses were thus validated as these teachers listened with obvious interest to what their students had to say and monitored further through clarifying and extending type questions. Teacher responses were used, at times, to guide students back to the central topic of discussion.

Although the influential teachers had established definite comprehension goals and implementation plans, they also responded readily to teachable moments to further the lesson objective. This is illustrated in the following interchange which occurred at the conclusion of the story as the students were examining the collage-type story illustration and a child asks, "Which one is Willy?"

T. Can't you tell?
C1. No.
T. I don't know. It's hard to tell. How could you tell them apart?
C1. Because he's a windup mouse.
T. Anything else about them that was different?
C2. Yes, he had a key.
T. Yes, anything else?
C3. Round—wheels.
T. Yes, maybe.

C4. Kind of like an egg.
T. Sort of.
C4. His ears were like two drops of tears.
T. Well, that's a good description—can you think of anything else about the way Mr. Lionni *chose* to make the mice? Here's Alexander. Here's Willy (shows picture of each).
C3. One's rounder.
C2. One of them is smooth and the other one's rough?
C3. Because one's a toy.
T. Which one would that be, the smooth one or the round one?
C2. The smooth one.
T. That's probably the one I would choose–because I would think of a toy–(interrupted).
C4. Because a real mouse would have fur.
T. And so he wouldn't be very smooth would he?
C3. No, he would be rough with hair sticking out.

This interaction also illustrates the skillful use of clarifying, extending and raising type questions in the discourse to develop interpretive and applicative levels of comprehension.

By contrast, the noninfluential teachers used discourse strategies which were more controlling in nature, more text-driven, and less responsive to teachable moments. These questions frequently focused the students' attention on specific aspects of the story prompting a literal recall response. Students were guided to limit their responses to short phrases which appeared to be designed to fill in the detail anticipated by the teacher's inquiry. These teachers also used a controlling strategy by directing the factual recall question to a particular child. These features are illustrated in the following interaction.

T. What did you like about the story?
C1. I liked the part where he found the pebble.
T. You like where he found the pebble. Where did he find it, Timmy?
C1. By a box.
T. Where?
C1. By a box.
T. By a box. What were some of the things that were in the box?
C2. Dolls–(interruption)
T. There were old toys in that box. Why had they been placed there?
C3. Because they were old and couldn't work
T. And they couldn't work. What did they plan to do with them, Henry? Henry, what did they plan to do with the old toys?

This type of interaction reflects a very limited repertoire of monitoring and discourse strategies available for use in guiding the students' thinking process to higher comprehension levels.

Reading Achievement Differences

Our analysis of reading comprehension achievement gains for students in the influential and noninfluential classrooms, as presented in Table 1, reveal statistically significant differences favoring the influential teacher students at Grades 2 and 3.

Table 1

Reading Comprehension Gain Scores (and Standard Deviations) for Students in Influential Teachers' and Noninfluential Teachers' Classrooms

	Influential Teachers		Noninfluential Teachers			
Achievement Measure	*N*	*Mean*	*N*	*Mean*	*F*	*p*
Metropolitan Reading Readiness Test—Grades K & 1	28	17.96 (16.72)	36	14.31 (8.81)	1.32	n.s.
ETS Listening Comprehension—Grades 2 & 3	54	5.88 (5.69)	34	3.14 (5.08)	5.24	.05
ETS Reading Comprehension—Grades 2 & 3	51	15.29 (12.43)	34	8.14 (15.29)	5.19	.05

These differences were found for both listening comprehension ($p<.05$) and reading comprehension ($p<.05$) for the two grade levels.

Although positive trend differences were present for students at kindergarten and Grade 1 for the influential teacher classrooms, these differences did not reach statistical significance. A clear testing limitation is present at kindergarten and first grade because of ceiling effects and the low sensitivity of readiness tests in measuring reading comprehension growth. This may account for the absence of statistical significance differences.

DISCUSSION

Our findings, both qualitative and quantitative, suggest that the influential teachers in the study were more effective in developing comprehension processes with their students than were the noninfluential teachers. Teaching effectiveness differences, related to our first hypothesis, favored the influential teachers on each of the five teaching variables of the *Classroom Interaction Patterns Scale* at statistically significant levels. Three of the scale variables, *Classroom Communication, Management Style,* and *Problem Solution Approach to Learning*, are intimately related to the development of skilled comprehension processing (Ruddell & Harris, 1989; Ruddell & Kern, 1986). The *Classroom Communication* variable reflects the teacher's ability to interact effectively with students by receiving and clarifying responses, reaching resolution in discussions, and in demonstrating sensitivity to student expectations and performance. *Management Style* reveals a clear instructional goal orientation and the effective use of motivation, and timing and pacing in the lesson. *Problem Solution Approach to Learning* indicates the ability to stimulate intellectual curiosity, build a positive attitude toward the topic under discussion, and effectively monitor responses and use questioning strategies which foster higher level thinking.

The statistical significance findings obtained for the interaction pattern scale variables were strongly supported by our descriptive analysis of the classroom instruction for the two groups of teachers. The influential teachers were highly skilled in their use of *Knowledge Control*, as posited in our second hypothesis. This was revealed through their use of clearly formulated *goals and objectives* which were closely linked to and served to guide their instruction. Student motivation was, for the most part, internal in nature ranging from intellectual curiosity to story problem resolution. By contrast, the goals and objectives of the noninfluential teachers were often vague in nature and frequently nonfunctional in directing the instruction. Student motivation was most often external and designed to provide factual recall, text-based responses to fit the teacher's preselected answer.

Although both groups of teachers used an *instructional plan* of oral story presentation followed by questions and discussion, the comprehension levels emphasized were markedly different. The influential teachers' plan included the predominant use of higher level interpretative and applicative type questions and used factual questions for clarification. Their questions sought to invite the students to become involved in the story and to perceive story events from a number of viewpoints, for example, Alexander, Willy, and the little girl. The instructional plan used by the noninfluential teachers, however, focused on factual level questions related to specific story details.

Instructional *monitoring and discourse strategies*, in the form of teacher-student interactions and questioning strategies, were distinctly different between the two groups of teachers. The influential teachers used clarifying, extending and raising type questions in their monitoring type interactions with students, promoting higher level comprehension processes which followed the clear development of the story theme. Wait time was used frequently to provide opportunity for comprehension processing, enabling the students to express their ideas as completely as possible. Student feedback and response validation was in evidence as the teachers listened to students with keen interest and followed with observations and clarifying, extending, or raising type questions. The noninfluential teachers, by contrast, relied heavily on a controlling strategy with focusing type questions at the factual recall level.

We hypothesized that these *Knowledge Control* components (Ruddell & Kern, 1986) should be directly related to and influence student achievement gains. The data related to our third hypothesis revealed statistically significant achievement growth for both reading comprehension and listening comprehension at Grades 2 and 3. Although positive trend gain differences were present for kindergarten and Grade 1, these differences did not reach statistical significance.

In conclusion, our findings support the observations of students that their past influential primary-grade teachers were highly effective teachers. The study, while exploratory in nature, provides insight into the relationship between teaching effectiveness and comprehension development. Further, our findings support the close connection between effective use of the *Knowledge Control* components in teaching and reading comprehension development, particularly at upper primary-grade levels.

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BEST IDEAS: SOURCES AND INFLUENCES

Sara Ann Beach
University of California, Riverside

Where do "best ideas" come from? Are the "best ideas" research-based or basically a product of conventional wisdom and strongly held beliefs? Have "best ideas" changed over time as knowledge has accrued about both pedagogy and reading?

The answers to these questions are neither simple nor straightforward. The choice of a set of "best ideas" is a value-laden decision, influenced by a wide range of social, cultural, educational, and economic factors. Research can produce "best ideas" or it can produce "worst" ideas that are nevertheless implemented and valued. The purpose of this paper is to describe how "best ideas" become valued by reading professionals, describe some of the sources of "best ideas" for reading teachers, and to examine if best ideas have changed over the last century. "Best ideas" are defined for this discussion as both the beliefs about reading and instruction and the teaching strategies valued, encouraged, and utilized by reading professionals.

HOW ARE BEST IDEAS CHOSEN?

In order for ideas to become valued, they must first become known. Clifford (1973) states that educational ideas and research are thrown into and filtered through the general marketplace of ideas. They become known and accepted by cultural diffusion, "an obscure, ambiguous, often involuntary transaction system whereby innovations and ideas are spread widely throughout some extended subsociety or the whole culture" (p. 25). If the research and ideas substantiate existing personal and group opinions, they are accepted. If they contradict these opinions, they get neither notice nor acceptance. Choosing and valuing an idea or practice, then, is dependent on the existing opinions of the receivers of the knowledge.

Other influences impact the acceptance of an idea as having use and value. Rogers (1983) lists four attributes which affect the adoption of an idea into a value system. First, the ideas must be perceived as being relatively advantageous to the individual or organization. If the idea is perceived as being much better than what is already believed, then it has more probability of becoming valued. If, however, it is perceived as being only as good or worse than what is already believed, the idea will probably be discarded. A second attribute is the compatibility of the idea with existing values, past experiences, and present needs. The more compatible the idea is with existing values and beliefs, the higher the probability of acceptance of the idea as a "best" idea. The less compatible it is with existing opinion, the less probability it has of adoption. The third attribute is the complexity of the idea. The easier the idea is to understand and implement, the higher the probability that the idea becomes valued. The more difficult the idea is to understand, the less probability it has of adoption as a best idea. The fourth attribute is the degree to which an idea may be observed or experimented with. If an idea can be easily implemented or if its implementation can be observed, the potential user of the idea has the opportunity to evaluate it before making a decision about its effectiveness.

Best ideas, then, are chosen because they correspond with and confirm existing beliefs, are perceived as advantageous, are relatively uncomplicated, and can be experimented with. Best ideas for reading instruction would be chosen, consequently, by reading professionals on the basis of which ideas correspond with their existing theoretical orientation to the reading process and their beliefs about the type of instruction that should be delivered (Kinzer & Carrick, 1986). Harste and Burke (1977) defined the theoretical orientation of a reading teacher as the particular knowledge and belief system a teacher holds toward the reading process. This theoretical orientation would include whether the teacher believed reading was a bottom-up, top-down, or interactive process as well as whether reading instruction should be content-centered or child-centered (Rupley & Logan, 1985). Those professionals who believe reading is primarily a bottom-up process may tend to value ideas which emphasize the goals of word recognition and literal comprehension of the author's meaning. Text-based or content-centered instructional ideas focusing on mastery of skills would be valued more highly. Professionals who believe reading is primarily a top-down process may tend to value ideas which emphasize the construction of meaning using the reader's prior knowledge and resources. Instructional ideas which were reader-based and student-centered emphasizing the holistic nature of language would be valued more highly. Professionals who believe that reading is an interactive process may tend to value ideas which emphasize the interaction between the reader and the text that leads to the construction of meaning. Both text-based/content-centered and reader-based/student-centered instructional ideas emphasizing both comprehension of content and increasing reader resources would be highly valued.

An individual's theoretical orientation toward reading and reading instruction is not the only influence on the choice of best ideas. Another important influence is the context of the teaching situation, the implicit and explicit social system of which the teacher is part and which mediates behavior (Barr & Duffy, 1978; Buike & Duffy, 1979). It includes the nature of the students in the classroom, the commercial reading program adopted by the school, the grade and ability level(s) being taught, the community surrounding the school, and the experiences of the teacher. Therefore, the choice of best ideas that a particular reading teacher chooses is balanced by the constraints placed on him or her by the community, school, and classroom in which he or she teaches. If the community and school advocate a bottom-up, content-centered curriculum emphasizing the acquisition of basic skills, the best ideas chosen by an individual teacher may be more consistent with those demands than with a more student-centered, top-down orientation, regardless of the beliefs of that teacher. If the administration of the school requires the teacher to use only the commercial reading program adopted by the school district, he or she will have to adapt his or her beliefs (especially if they do not match the assumptions of the textbook) to the constraints imposed on him or her. If the students in the classroom are perceived to be low ability, teachers will often focus on text-based, content-centered instruction. On the other hand, if they are perceived as being of high ability, the instruction often becomes very reader-based and student-centered. Primary grade teachers often have a tendency to focus on text-based instruction (word recognition skills) whereas intermediate grade teachers focus more on comprehension.

How do these theoretical orientations develop? Can they change? Stansell and Robeck (1979) studied the development of theoretical orientations among preservice teachers. Students in various phases of a teacher preparatory curriculum in a university were assessed throughout their preparation period using the Theoretical Orientation to Reading Profile (TORP). They concluded that theoretical orientations of the students developed as result of the classes they were required to take and could change as a result of the theoretical orientation of the professors under whom they studied. Moore (1981) agreed that while formal training programs may influence the development of a theoretical orientation to reading during preservice training, this influence often did not carry over into classroom practice during the first year of teaching. Reesag (1984) found, however, that advanced level courses in reading did influence what teachers did in the classroom.

Bean (1980) explored the degree to which a graduate course in reading would update teachers' existing beliefs and practices. The students in the graduate class completed a self-rating scale on their teaching of reading at the beginning of the course and again at the end. The course, a blend of psycholinguistic theory and practical teaching strategies, was instrumental in updating teacher beliefs and practices.

A teacher's beliefs and theoretical orientation, then, are formed as a result of the early courses taken during preservice instruction as well as during professional courses taken after certification. They are not static, but can change if a teacher is given guidance and shown how to apply the beliefs to real teaching situations. Both preservice and staff development training should focus not only on providing information to teachers but also provide follow-up guidance in the application of the information to actual teaching practice.

WHAT ARE SOME SOURCES OF BEST IDEAS?

Best ideas come from several sources. One of the sources consulted most frequently are a teacher's peers and the reading specialist in the school (Ruddell & Sperling, 1988). Sawyer (1976) surveyed 200 primary-grade teachers chosen at random from the membership of the International Reading Association to find out what they used as sources for ideas and assistance. At the top of the list were teachers in the same school. Logan and Erickson (1979) surveyed elementary teachers and found that a one-to-one conference with the reading specialist was a preferred way to get ideas to refine instruction. R. Robinson (1979) found that classroom teachers get ideas from local reading specialists who share new information and research findings aimed at solving common problems.

Another source of ideas are university classes, methods textbooks, inservice presentations, and "experts" in the field. Sawyer's survey (1976) revealed that professional textbooks were the second most frequently used source. Stansell and Robeck's study of preservice teachers (1979) showed that both the professor and the reading course influenced the choice of best ideas. Moore (1981) observed that both formal training programs and professional books influenced reading instruction, but that formal training programs had less influence than other sources. Logan and Erickson (1979) discoverd that inservice presentations provided ways for teachers to refine instructional methods. The most preferred inservice workshops were training sessions with consultants on specific problem areas, classes or workshops for college credit, and presentations by reading specialists. Bean (1980) concluded that graduate classes that were a blend of theory and practical teaching strategies were instrumental in changing teaching practices. Pearce (1984) observed that busy teachers got their ideas from inservice workshops as well as coursework and the textbooks accompanying them. Even the "experts" are influenced by textbooks. A column in *The Journal of Reading* entitled "Readings That Made a Difference" chronicled the influence of specific books on those reading professionals who are now considered experts (see, e.g., H. Robinson, 1980; Harris, 1979).

A third source of best ideas are journal articles, professional meetings and research (Pearce, 1984; Ruddell & Sperling, 1988). Sawyer's (1976) survey showed that the most preferred features of journal articles were activities for classroom use, enrichment activities, and suggestions of materials for classroom use. Ngandu (1978) analyzed the content of the International Reading Association National Conventions from 1962–1977. She discovered that the convention became more and more geared to the needs of practitioners. One recent book of best ideas, *Becoming a Nation of Readers* (Anderson, Hiebert, Scott, & Wilkinson, 1985) is based on the most current research on reading.

A fourth source of ideas is commercial reading materials used in the classroom (Moore, 1981). Shannon (1982) stated that teachers rely on the ideas in commercial reading materials because they believe that the materials have scientific validity. Additionally, they feel pressure from the school administration to use them.

HOW HAVE BEST IDEAS CHANGED?

Best ideas in reading, in fact in all of educational practice over the last century, have been influenced by a variety of economic, social, cultural, and educational factors. These factors include the increased time spent in school by children, the increasing flow of immigrants into the country, the increased need for literate workers, the diminishing and then resurgent influence of religion, and the changing concepts of child development. The schools did not initiate new practices because of these changes. They began to reflect the changing practices and beliefs about children as well as changes in society. Table 1 summarizes some best ideas over the century.

Before the 1920s, the best ideas in reading instruction were the almost exclusive use of oral reading and of drill. The learning of decoding skills was emphasized. It generally was believed that comprehension would occur if word recognition was mastered. Reading methods texts of the period emphasized oral reading and synthetic phonics (A. Hoffman, 1983; J. Hoffman & Segel, 1983).

Table 1

*Best Ideas Across the Century**

1920s	1930s	1950s	1960s	1980s
Emphasis on reading as a thought-getting process. Recognition of importance of wide experience to good interpretation. Increase in amount, variety, quality of reading materials. Systematic development and independent use of reading habits. New classroom organization. Use of informal tests to discover needs.	Increase breadth and efficiency in instruction. Acquire greater independence in reading. Reading part of unified program. Development of basic reading habits. Intriguing materials used. Base instruction on capacities, interests, needs of students.	Provision of adequate experiential background. Development in reading related to other language arts. Definite instruction in reading rather than just test exercises. Directed toward specific valid ends such as rich experiences, broad interests, enjoyment, and growth in fundamental reading ability.	Interrelationship of learning to read and role of reading in personal and social development at all levels. Make explict the close relationship of reading and the other language arts. Continuous program, each level building on the previous one.	Parental involvement in early reading. Stimulating classrooms. Well-designed phonics lessons. Interesting materials for instruction. More time for comprehension instruction, independent reading and writing. More comprehensive assessment of reading and writing.

*From *NSSE Yearbooks* (1925, 1937, 1949, 1961).

During the 1920s emphasis shifted to silent reading. Research began to make itself felt, although the influence of the research derived more from the opinions of the researcher than the quality or results of the research (Venezky, 1984). Thorndike's view of "reading as reasoning" combined with the Herbartian emphasis on meaning and content moved the view of reading to more than just word calling. Reading methods texts began to emphasize the "look-and-say" method of teaching reading as well as silent reading. A dichotomy arose between those who felt reading should be taught as sequential skills and those who felt it should be based on the purposes of the child (Paris, Wixson, & Palincsar, 1986).

During the 1930s the use of oral reading returned to the classroom (J. Hoffman & Segel, 1983), although the emphasis on silent reading continued. Reading methods textbooks emphasized the systematic teaching of reading skills using the controlled vocabulary of the basal readers (A. Hoffman, 1983).

During the late 1940s and the 1950s, basal readers, the Directed Reading Activity, and round-robin oral reading became entrenched in the schools (I. Hoffman & Segel, 1983). The skills approach was favored, with stress placed on phonics instruction. By the early 1960s, reading methods textbooks were expanding to include discussions of individualization, the language experience approach, programmed instruction, and linguistic readers.

In 1985, Anderson et al. reviewed the research on reading for the Office of Educational Research and Improvement. The result was ***Becoming a Nation of Readers***, which could be classified as the best ideas for the 1980s.

Have values really changed over the last century? Not really. Those ideas valued in the 1920s (importance of background knowledge, use of a wide variety of reading materials, emphasis on reading for meaning, encouraging permanent interest in reading, integration of reading with other subject areas) are still valued today. What has changed over the years is how best to achieve these valued aims. What, then, has the increased research in reading contributed toward the formulation of best ideas or changing values of reading teachers? It has served to illuminate the many aspects of the reading process as well as highlight the different paths leading to the same goals. It has brought diversification to the field of reading. As Dewey said in 1929, "Command of the subject matter and the scientific method . . . liberates the individual; it makes for diversification rather than set uniformity" (cited in Clifford, 1973, p.3). This diversification has led and will continue to lead to more and changing methods to implement best ideas which will hopefully lead to better reading instruction and a more literate society.

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TEACHING STUDENTS TO LEARN FROM TEXT: PRESERVICE CONTENT TEACHERS' CHANGING VIEW OF THEIR ROLE THROUGH THE WINDOW OF STUDENT-PROFESSOR DIALOGUE JOURNALS[1]

Thomas W. Bean and Jan Zulich
University of Hawaii at Hilo

The process of enculturating future content teachers in the role of guiding students' learning from text occurs during required content area reading methods classes. More than 31 states currently require some form of content area reading course for preservice teachers (Bean & Readence, 1989).

Most of these courses introduce students to an interactive model of learning from text that emphasizes the role of the teacher as a guide who carefully selects, modifies, or enhances the text (Singer, 1987). The teacher is viewed as one who instructs and learns in a reciprocal relationship with students, making instructional decisions prior to and amidst the ongoing activities of a lesson (Dreher & Singer, 1989; Schon, 1987). For example, a teacher may develop three-level study guides and orchestrate small group discussion of the guide questions. The role of the teacher as a facilitator who helps students cope with often unfriendly texts in mathematics, the sciences, and other fields is the dominant philosophy expressed in many content area reading methods textbooks (Readence, Bean, & Baldwin, 1989; Singer & Donlan, 1989).

Despite this national commitment to content reading, O'Brien (1988) argued that "content reading professors wage a frustrating battle to convince preservice teachers from a multitude of subject area disciplines of the value of content reading instruction" (p. 237). In O'Brien's skeptical view, these preservice teachers reject a content reading philosophy because of various competing subcultures. First, a student's major discipline, whether English, agriculture, or mathematics, is a strong force in shaping perceptions about teaching. For example, textbooks may be shunned by the discipline in favor of practical "hands on" learning. Second, field-based practica experiences in schools exert a great influence on preservice teachers' development. Preservice teachers may hear about the value of guided teaching, three-level study guides, and cooperative learning in their university content reading course, but in their school-based practicum they often experience classrooms where an assessment-driven curriculum places a premium on text explicit comprehension.

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[1] This paper was part of a National Reading Conference Symposium on "Reading and Learning from Text in the Classroom: The Teacher Variable," in honor of Professor Harry Singer and his many contributions to research and NRC. Harry was a good friend and collaborator over the years. His memory informed the work of this group.

This dichotomy of university and school value systems has been a perennial stumbling block in preservice programs. University faculty operate in a subculture that awards a questioning stance while teachers are often rewarded for developing orderly and productive classroom routines (Cherland, 1989). Field experiences function at the level of an apprenticeship where preservice teachers try to adapt to existing practices through imitation. The experienced teacher functions as a skilled technician, delivering instruction. In contrast, the education professor attempts to create a professional educator who reads journals, attends conferences, engages in long-range staff development, and continues taking university classes. Cherland's proposed solution to this dichotomy is to adopt a model of reflective practice that rewards both preservice and inservice teachers for functioning as professional educators.

A third and important factor interfering with preservice students' acceptance of content area reading was overlooked by both O'Brien (1988) and Cherland (1989). A preservice teacher's individual development plays a pronounced role in the value placed on the content area reading course. Individual development in this case refers to the novice teacher's "institutional biography" (Britzman, 1987, p. 221), or the memory traces of all the individual's school experiences. Some impressionistic data collected by Stewart and O'Brien (1989) suggests that individual students vary in their perceptions of the purposes of the content reading course. These misconceptions undoubtedly stem from the student's individual experiences in education and influence their willingness to integrate guided teaching and content. In the Stewart and O'Brien study preservice students were asked why they felt a content area reading course was required. Based on a qualitative analysis of students' responses using constant comparison to generate categories, four dominant categories were constructed: (a) on target, (b) diagnosis and remediation, (c) self-remediation, and (d) no idea. These researchers found that 23% were on target, 34% saw the course as a way to learn diagnostic and remediation skills; 39% viewed this as an opportunity for self-remediation; and 4% had no idea why the course was required.

The present study explored preservice content area teachers' changing views of a required course through the window of student-professor dialogue journals (Bean & Zulich, 1989). Students and the professor wrote for 10 minutes at the beginning of class and then exchanged their journals for mutual response prior to the next class meeting. Typically, six journals were collected and one student took the professor's journal to read and respond to. The content area reading course involved a field-based observation and participation experience in junior and senior high schools in a multicultural community.

The case study method was adopted for this study (Merriam, 1988). We conducted an intensive content analysis of three student-professor dialogue journals representing the following disciplines: (a) English, (b) agriculture, and (c) mathematics. Our rationale for selecting these particular content fields centered on the view that we might expect a prospective English teacher to be more receptive to a content area philosophy while students in the disciplines of agriculture and mathematics might be less receptive, given the less text-bound nature of their fields.

METHOD

Subjects

Three students who kept dialogue journals over the span of the content area reading course were selected for analysis. Pseudonyms were created as follows: Sarah in English, Lee in math, and Karen in agriculture. Sarah was a mature returning student in her senior year with teenage children of her own. Karen and Lee were both seniors in their twenties and single. Sarah and Lee were of Caucasian ancestry and Karen was part-Hawaiian.

Materials and Procedures

These 3 students averaged eight dialogue journal entries during the semester of content area reading. Each was transcribed for analysis. We used 3 × 5 notecards for initial analysis and interpretation. In the initial stages of data analysis, both researchers, as a form of triangulation, independently read through the 3 students' journal entries from initial to final entry, taking notes on the 3 × 5 cards. Following Merriam's (1988) case study procedures, we jotted down notes that reflected general impressions during our reading and analysis. For example, a student entry that revealed some trepidation about engaging in the first day of observation/participation in a school caused us to jot down "student worried about going into a school." These initial notes were then organized into categories. Ten categories emerged that encompassed students' comments: (a) acknowledging the value of content area reading, (b) attitude toward reading, (c) specific content area reading strategies, (d) concerns typical of preservice teachers, (e) evidence of discipline-based subculture membership, (f) uncertainty about teaching and one's own ability, (g) immersion in the field experience, (h) change in perception of content area reading, (i) interest in political and professional matters, and (j) general comments to the professor. Constant reinspection of the student entries resulted in the final development of 4 categories that subsumed many of the elements of the original 10. The final four categories were: (a) value of content area reading, which encompassed references to specific strategies and changes in perception of content area reading; (b) preservice thoughts, which included uncertainty about one's own teaching ability; (c) professional immersion, which included evidence of subculture membership and interest in political and professional issues; and (d) attitude toward reading.

RESULTS

A frequency count of the number of times Sarah, Karen, and Lee made comments in the four categories was revealing. Actual student remarks at the sentence level in the journals comprised the data for this frequency count. Table 1 displays the frequency of student comments in each of the four categories. These data reveal the diversity in students' reflections about content area reading. However, the data require further discussion to fully appreciate these differences.

Table 1

Frequency of Student Comments in Each Category

Category	Sarah	Karen	Lee
Value of Content Reading	10	7	0
Preservice Teacher Thoughts	7	2	9
Professional Immersion	5	3	6
Attitude Toward Reading	6	4	0

English Major

Sarah, as an avid reader, had 10 positive comments on the value of content area reading. For example, she commented, "I'm going to be spending some time with Chaucer. I'd like to incorporate text previews with this unit and vocabulary preview." She knew and was able to discuss specific teaching strategies she considered incorporating in the teaching of English literature. Throughout her journal she grappled with how best to integrate content area guidance and the time constraints of teaching. In the category of preservice-teacher thoughts, seven entries displayed anxiety about acceptance in the school. Sarah wrote, "So now I know I'll be out at Pahoa High School for my O.P. and hope I'll have a great English teacher to model after. Part of me just wants to jump in and get involved with a real class and real students (enuf already of the theories etc.). The other side of me anticipates with nervousness the idea of being up in front of the class—30 pair of eyes critically scrutinizing the new teacher!"

Within the category of professional immersion, Sarah had five mentions. She wholeheartedly embraced her placement in a rural 12th grade English class, immediately rereading *Wuthering Heights*, the initial text, and later plunging into her unit on Chaucer. In addition she occasionally commented on the education courses, with some displeasure at the amount of theory introduced.

Sarah had a markedly positive attitude toward reading. She alluded to her own positive view of pleasure reading six separate times. She commented in detail on the fantastic old copy of *Wuthering Heights* she found with woodblock prints. She argued that we all need pleasurable escape reading, demonstrating both an English major's perspective and a view espoused in the content reading course.

Agriculture Major

Karen presented a distinctly different picture across the four categories. She mentioned the value of content area reading seven times but her comments seemed more like platitudes than philosophical anchors for her teaching. For example, she said she would use the many strategies learned when she is a teacher. She also related these comments to her own reading ability. Karen displayed a good deal of insecurity in reading throughout her journal comments.

Karen's preservice-teacher thoughts consisted of only two mentions. She wrote, "I only hope that I'll be able to provide a rewarding educational experience to all students." Similarly, in the area of professional immersion, she had only three comments.

Karen's attitude toward reading consisted of four negative comments. She mentioned a strong aversion to reading required texts but also a lack of time for leisure reading. "Never too late," she told herself. This personal struggle with reading was a strong undercurrent throughout all her writing and thinking.

Mathematics Major

In contrast to Sarah's keen interest in many dimensions of content area reading and teaching in general, and Karen's focus on herself as a learner and reader, Lee, our mathematics teacher, came to us with a schema for teaching and learning firmly rooted in the mathematician's subculture.

In the category encompassing how students valued content area reading, Lee made only one passing comment, which occurred in the first journal entry, and displayed resistance. In this particular entry, Lee referred only once to the nature of the class, calling it a "reading course." In this same journal entry Lee provided the mathematician's subculture perspective on content reading, commenting that, "students don't read math texts except to copy an example." Claiming to have reached the level of "math maturity" where one sees the value in reading mathematical materials, Lee admitted, "Even now, I don't get overly excited with reading." He saw little productive value in having students write, considering it to be "the English teacher's job." His journal continued to demonstrate an avoidance of content area reading.

Lee broached the topic of preservice-teacher thoughts nine times. His initial concerns about placement in an observation/participation assignment echoed those of his peers in English and agriculture. He worried about being liked by the students while trying to maintain a separateness he viewed as crucial for a teacher. He quickly embraced the role of an apprentice to the host math teacher, imitating the teacher's approach.

Lee mentioned six professional immersion statements or questions that displayed the strong pull of subculture membership in mathematics and the culture of the school. His entries were analytical. He often referred to teaching and learning in cause-effect terms, as in, "They're working hard and it is paying off." However, like other novice teachers, Lee valued teaching successes from a predominantly egocentric stance. Studies of preservice teachers suggest that they are often focused solely on personal needs like completing the planned lesson and being liked by students (Fuller & Brown, 1975).

In terms of attitude toward reading, Lee ignored this dimension. He had no entries that referred to his own reading abilities or interests apart from mathematics, in marked contrast to his peers in agriculture and English.

DISCUSSION

One of the most striking features of this case study analysis is the variability in role perceptions across these three students. Although they share many of the characteristics of preservice teachers, there is less commonality on this dimension than we expected. Our interpretation of this variability relies on three important factors that seemed to shape these students' views of their roles as content teachers in relation to the required content area reading course. First, the particular subculture of the discipline does indeed, as O'Brien (1988) found, weigh heavily in how each of these individuals perceive their teaching role. Second, the disparity between the culture of the university content area reading course and the school site interacts with the particular content discipline to induce an apprenticeship stance rather than that of a reflective change agent (Cherland, 1989). Finally, a student's individual development, consisting of past experiences in school situations, plays a heretofore uncharted role in shaping how a person will manage the multiple and often disparate cultures of the discipline, the school, and the content reading course. We discuss each of our three students in relation to these three competing factors.

Sarah, our English teacher, represents a discipline with strong links to the value system of guided teaching. She readily embraced text previews and vocabulary strategies that would illuminate the obscure language of Chaucer for her high school students. She displayed concerns typical of preservice teachers in terms of preparation and acceptance (Livingston & Borko, 1989). Yet she was a mature, confident individual with an institutional biography of largely positive experiences who departed from the typical apprentice stance charted by O'Brien (1988) and Cherland (1989). Indeed, this factor of individual development needs further study in relation to subculture discipline and the culture of the school. "Lifelines" (Jeweler, 1989) are student created visual autobiographies of past experiences. These student-constructed drawings provide a means of accomplishing Britzman's (1987) recommendation that teacher educators help novice students reconcile their own educational experiences in relation to their developing role as a teacher. In addition, as a research tool, they may shed light on a novice teacher's individual development when combined with dialogue journal entries. We are only beginning to explore this additional source of biographical information.

Karen, the agriculture major, displayed concerns about her own reading skill. These concerns seemed to override subculture and school-based issues. Stewart and O'Brien's (1989) study found that 39% of their content area reading students saw the course as a means to self-remediate difficulties they might be having. Karen commented that she had "enormous amounts of reading" in all her courses, difficulty remembering what she reads, and requests for suggestions on how to solve these problems. It is difficult to speculate on how Karen's struggle with reading might carry over into teaching where modeling enthusiasm for reading influences students' attitudes. In a study of 1,000 preservice teachers' reading autobiographies, Manna and Misheff (1987) found that 28% of the students mentioned that reading was not a priority in the homes where they were raised, and this factor caused them to lack confidence in reading throughout their lives. Karen mentioned she read romance novels at one time and now feels guilty about not taking time to engage in leisure reading.

In her field placement she worried about agriculture where few textbooks are used. As the course progressed, Karen mentioned valuing the class, yet she mentioned few specific strategies apart from an emphasis on technical vocabulary.

Unlike Sarah, Karen is a more traditional college student without the extensive life experiences Sarah brought to the class. This developmental factor, coupled with the subculture of agriculture where "hands on" learning is favored over texts, would normally result in some tension over the philosophy of content reading. However, because Karen focused on her own attitude toward reading and her own difficulties with learning from text, this factor reduced the strong subculture alliances O'Brien (1988) observed in his course.

Finally, Lee, our mathematics major, was most strongly influenced by the subculture of his discipline and the culture of the school. The content area reading course was simply a hurdle to be overcome along the way to becoming a math teacher through imitation of an expert. Lee viewed himself as an apprentice to a mentor teacher who held the truth for one in math. Lee's indifference toward reading in general and content area reading in particular may have been partially related to his individual development. Like Karen, Lee was a younger student, caught up in problems of dating and breaking up, purchasing an old car, and finding his way. But his journal reveals a genuine alliance with the discipline. This alliance, in our view, overshadows the issue of individual development in Lee's case.

Thus, we would argue that the issue of how preservice teachers go about integrating content area reading concepts with their individual schemata for teaching is highly variable. Based on these case studies, we believe that the competing forces of discipline and school-based cultures, as well as individual development, play uncharted roles in a preservice teacher's efforts to function successfully within the profession. We are in the process of conducting a long range study of our students' dialogue journals at various stages in these novice teachers' professional development to investigate these factors in more detail.

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THE INFLUENCE OF LITERACY-ENRICHED PLAY SETTINGS ON PRESCHOOLERS' ENGAGEMENT WITH WRITTEN LANGUAGE

Susan B.Neuman
Temple University

Kathy Roskos
John Carroll University

Of the range of activities that may engage young children in literacy, none is perhaps more self-directed than play. As children discover and invent literacy through play, they develop important generalizations about written language as a meaningful activity (Harste, Woodward & Burke, 1984). Indeed, recent research suggests that preschoolers' active involvement with literacy through play is an important developmental stage in becoming literate (Goelman, 1984; Y. Goodman, 1984). In this capacity, play offers enormous potential as a resource for literacy learning in the early years.

There has been a tendency, however, to overlook play as a curricular tool in emergent literacy. Although Vygotsky (1978) hypothesized a central role for play in literacy development, the traditional notion that children are not "ready to read or write" before schooling has steered educators away from promoting literacy behaviors in play environments. Only recently, in fact, has play even been seriously considered as a rich contextual setting for observing emerging literacy behaviors (Galda, Pellegrini, & Cox, 1989; Jacob, 1984; Pellegrini, 1985; Rowe, 1989; Schrader, 1989; Yawkey, 1983).

Overlooking play as a context for written language has had at least two unfortunate consequences. With the exception of the book corner, print has not typically flowed through in-school play environments as it may in many homes and community settings (Leichter, 1984). Since it has been documented that children are spending an increasing amount of time in these early childhood settings (Kagan, 1989), fewer opportunities may be available for them to become involved in naturally occurring literacy routines, such as going to the grocery store, the Post Office, and the library.

A second consequence closely follows. By not using play as a context to foster literacy, professionals are missing out on opportunities to promote children's emerging conceptions of reading and writing from a developmental perspective. In postponing written language learning to be taught more "formally" outside of a play setting, we run the risk of having literacy become less contextualized and less functional, and, therefore, less meaningful from the child's point of view, making literacy learning at some later stage seem unnecessarily difficult and irrelevant (K. Goodman, 1986).

In contrast to these practices, we propose that play can serve not only as a curricular tool in support of literacy development, but also one that influences it. If afforded more opportunity to engage in literacy-related play, children may reveal and share with one another their preferences and competencies, and in so doing, create the conditions necessary for socially mediated literacy learning. Indeed, play may serve as an important resource for children to explore their developing conceptions of the functions and features of print in the preschool and primary school years.

To explore this hypothesis, we designed a study to examine the influence of literacy-enriched play centers on preschoolers' conceptions of print. Specifically, the study addressed the following questions: (a) Do literacy-enriched play centers influence the frequency of literacy demonstrations in the spontaneous play of preschoolers? (b) Do these play centers enhance preschoolers' concepts about print? (c) In what ways might physical design changes in the play environment influence the nature of children's print activities in play?

METHOD

Subjects and Setting

Thirty-seven children (25 boys; 12 girls), ages 4 and 5, from two urban preschool classes ($N = 20$; $N = 17$), participated in the study. The preschool served families from diverse ethnic backgrounds (83% Caucasian, 15% Black, 2% Asian) and socioeconomic status levels. Both classrooms were in close proximity to each other, were similar in spatial arrangement, and included identical play areas: housekeeping, blocks, small manipulatives, book and art corners. Few print materials, aside from books in the book corner, were included in these areas in either classroom.

The Intervention Design

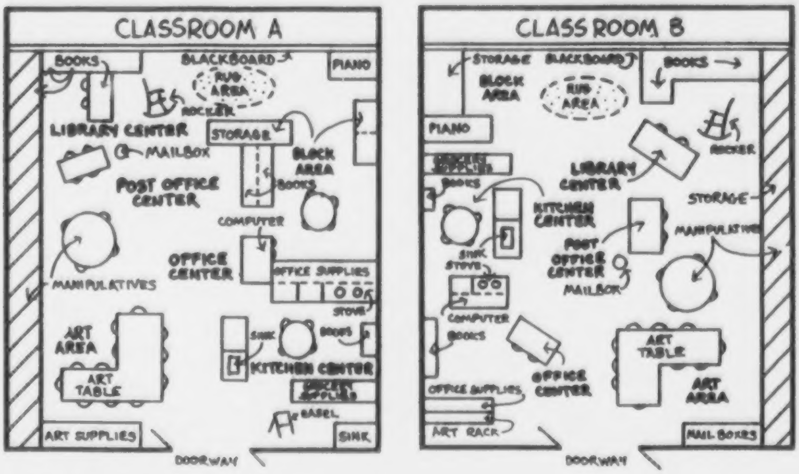
To examine the effects of literacy-enriched play centers on children's literacy demonstrations, the physical environments of both classrooms were redesigned. Since design changes may effect children's play behaviors more broadly (Johnson, Christie, & Yawkey, 1987; Morrow, 1989), it was important that these modifications take into account existing spatial arrangements as well as common functions of reading and writing among preschoolers as evidenced in our previous research (Neuman & Roskos, 1989). In this respect, an understanding of the environmental setting as well as information from the child's point of view were considered in the intervention design. With these considerations in mind, five basic design changes were made in the classrooms:

1. All play areas were more dramatically carved away from one another and clearly marked using semi-fixed features, such as cupboards, screens, tables and hanging mobiles.
2. The labelling of items in the physical environment was increased. For example, storage bins for blocks and art materials were identified by illustrated and printed signs.
3. Four distinct play centers were created: Post Office, Library, Office and Kitchen. These centers, resembling activities familiar to children, might be easily linked to

literacy activities outside the preschool, and thus might help to facilitate written language use by them on their own terms.

4. The actual physical space was rearranged to allow for movement between the literacy-enriched centers. Based on previous research (Roskos, 1988), close proximity of specific play centers appeared to foster more sustained play themes.
5. Literacy props were inserted into each play center, guided by three criteria drawn from our earlier work: appropriateness (observed use by young children), authenticity (a real item in the general environment), and utility (usefulness to children in their imitative literacy attempts).

Figure 1 illustrates the design of the play environments, along with an abbreviated list of literacy props.


CLASSROOM A
BOOKS
BLACKBOARD
RUG AREA
PIANO
ROCKER
LIBRARY CENTER
STORAGE
MAILBOX
BLOCK AREA
POST OFFICE CENTER
BOOKS
COMPUTER
OFFICE CENTER
OFFICE SUPPLIES
MANIPULATIVES
STOVE
ART AREA
SINK
BOOKS
KITCHEN CENTER
ART TABLE
GROCERY SUPPLIES
EASEL
ART SUPPLIES
SINK
DOORWAY
CLASS ROOM B
STORAGE
BLACKBOARD
BOOKS
BLOCK AREA
RUG AREA
PIANO
ROCKER
GROCERY SUPPLIES
LIBRARY CENTER
BOOKS
STORAGE
KITCHEN CENTER
MANIPULATIVES
POST OFFICE CENTER
SINK
STOVE
MAILBOX
COMPUTER
BOOKS
ART TABLE
OFFICE CENTER
ART AREA
OFFICE SUPPLIES
ART RACK
MAIL BOXES
DOORWAY

Examples of literacy props in centers:

Kitchen play Center

Telephone books
A telephone
Emergency number decals
Cookbooks
Food coupons
Grocery store ads

Post Office Center

Stationery and envelopes
Mail box
Computer and address labels
Posters and signs about
zip codes
Tote bag for mail

Office Play Center

Calendars
Appointment book
Signs
Magazines for waiting
room
Assorted forms

Library Play Center

Library book return
cards
Children's books
Stamps for borrowing
Book marks
Sign in/sign out sheet

Figure 1. The design of the play environments with literacy props.

Procedure

Prior to the intervention phase of the study, three measures of literacy behavior in play were obtained over a 2-week period. First, using an observational procedure developed by Singer and Singer (1980), each child's actions and language (verbatim) were recorded during their spontaneous free play time for a 10-minute period on four separate occasions by two trained observers who were graduate students in language arts. Using videotapes of preschoolers' literacy in play from our previous study (Neuman & Roskos, 1989), observers were trained not to interpret behavior, but to record what actually occurred during observational periods. A total of 40 minutes of observation was recorded for each child, yielding 148 play protocols. Second, play activity in four different areas (housekeeping, book corner, art table, manipulatives/board games) was videotaped for 30 minutes, four different times, for a total of 2 hours per play area. Third, each child was individually administered the "Sands" booklet of the Concepts about Print (CAP) test (Clay, 1979).

Following these procedures, the physical play environments of each classroom were enriched during nonschool hours with literacy-related materials. Over the next 4-week period, no formal observations took place as children became accustomed to these design changes. During these free play periods, teachers and aides were encouraged not to intervene or restrict any areas, but to allow children to freely move through all the play centers.

Using the same observational and videotaping procedures, children's play was then systematically observed once again during a 2-week period. "Stones," another form of the CAP assessment, was administered to each child.

Analysis

Play protocols were analyzed for evidence of literacy demonstrations, defined as instances of reading or writing-like behaviors. Such examples included scribbling, marking on paper, pretending to read, book-handling, or attending to print in some manner. Boundaries segmenting each play behavior that included literacy demonstrations were established to allow for the coding of each demonstration. Two indicators were used to establish boundaries: shifts in the focus of the play activity (e.g., switching from playing in the library to the kitchen), and shifts in interaction between the players (e.g., a player initiates play/talk with someone else on a new topic). Coders counted the number of literacy demonstrations for each child during the 40 minutes of observation prior to and following the intervention period. Two research assistants independently coded a sample of 20 protocols to determine the reliability of the coding procedures; intercoder reliability indicated .98 agreement. Differences of means tests were used to analyze pre- and post-intervention changes in literacy demonstrations and children's concepts about print.

Videotaped play activity was qualitatively analyzed using the ethnographic procedure of typological analysis (Goetz & LeCompte, 1984). Play frames—play bound by a location and a particular focus or interaction (Bateson, 1955; Sutton-Smith, 1979)—were established and 34 literacy-related frames were isolated for further analysis. Successive viewings of a sample of 10 randomly selected frames, prior to and following the intervention, were examined to analyze in what ways the literacy enrichment may have influenced preschoolers' literacy demonstrations and play behaviors.

RESULTS

Since there was no attempt at this stage in our work on the literacy enrichment of play environments to obtain a matched sample as a control group, the following results are suggestive and should be interpreted with caution.

Findings reported in Table 1 indicate that the average number of literacy demonstrations in play rose sharply over a 2-month period, with young children spontaneously using almost twice as much print for play purposes than prior to our intervention. Children's CAP scores, as well, rose significantly during this period. Although it is impossible in this study to suggest a causal relationship (i.e., literacy demonstration "caused" higher CAP scores), these results do suggest that environments "littered with print" can promote children's interactions with literacy.

Though these quantitative changes are important, the qualitative analysis revealed a number of more subtle and complex changes in literacy demonstrations within a literacy-enriched play environment. These changes were characterized by two trends reported in Table 2.

One was the striking increase in the duration of literacy demonstrations. Whereas demonstrations prior to the enrichment tended to be quite brief, those following the physical design changes were far more sustained. For example, the average duration of literacy-related play frames was about 1.7 minutes prior to our intervention; following the enrichment, these frames lasted approximately 5.18 minutes.

Related to this trend, was a marked change in the density of literacy demonstrations, that is, the number of demonstrations coded within individual play frames. Following the intervention, these demonstrations seemed to interlink, forming chains of related literacy behaviors. For example, before enrichment there were few connected demonstrations, averaging approximately 1.57 within a literacy related play frame; after enrichment, however, the literacy-related play frames contained on the average of 9.0 literacy demonstrations. In fact, at times, the literacy demonstrations in these chains were so closely connected that they became almost indistinguishable from one another.

Table 1

Effects of a Literacy-Enriched Play Environment: Mean Score Differences

	Prior to Enrichment		Following Enrichment	
Variable	*M*	*SD*	*M*	*SD*
Literacy Demonstrations	1.51	1.95	2.83*	2.90
Conventions About Print (Clay, 1979)	9.16	3.90	11.51**	3.77

$^{*}p < .01$. $^{**}p < .001$.

Table 2

Density and Duration of Literacy Demonstrations: Mean Score Differences

Variable	Prior to Enrichment *M*	Prior to Enrichment *SD*	Following Enrichment *M*	Following Enrichment *SD*
Duration[a]	1.71	.42	5.18*	4.38
Density	1.57	.49	9.00**	8.14

[a] Duration is measured in minutes.
*$p<.01$. **$p<.001$.

A brief comparison of two play frames illustrate these two trends. For example, prior to enrichment:

> Michael is playing house with Scott in the housekeeping area. He has a piece of drawing paper and a box of markers. After the boys sit down at the table and confer briefly over the paper, they begin to play with different colored markers, testing each color on the paper. They then turn to sorting and stacking pots and pans from the cupboard in preparation for cooking.

All total, in this play frame, there was one literacy demonstration which lasted approximately 30 seconds. As indicated here, writing appeared to be the focus of exploration, rather than used in the service of the play more broadly.

In contrast, literacy-related play themes in the enriched play centers appeared more instrumental to the play experience, and therefore, seemed to set off a chain of literacy-related demonstrations of longer duration. For example:

> Michael and Scott are in the Office play center. They are playing "sign-up." They want people "to sign-up" for the homeless. Scott has a small clipboard and pencil. He circulates throughout the classroom, asking different teachers and children to sign their names on his clipboard. Michael remains in the office "writing" at the desk. Periodically he looks up and directs Scott to ask someone else. Finally Scott returns with a list of signatures. Both boys pretend to "enter" the list into the computer. Scott points to names on the list and Michael types. When done, Scott removes the paper from the clipboard and is sent out again to gather more names.

This literacy-related play frame, lasting approximately 15 minutes, suggests that reading and writing activities became more integral and useful to the actual flow of the play itself. In fact, in this instance the print activities are the action which bound the play into a coherent theme.

Upon closer examination, the typological analysis of these literacy-related play frames revealed five characteristics of change in the literacy demonstrations indicative of the aforementioned trends.

Literacy demonstrations in the enriched play centers became more *useful*, or purposeful, and more *unified*. Children used literacy to obtain and convey information vital to their play schemes such as to "sign up" for activities and to "read" recipes for meal preparation. Rather than incidental to the play, literacy was pressed into service for some larger goal—the realization of play purpose.

Demonstrations became more *situated*. Explicit play contexts, such as the Office and the Post Office, provided distinct frames of references and the literacy props in each center served as concrete cues for literacy uses. Contextual explicitness and props supported and helped to situate play themes strengthening the fabric of play and guiding its course. For example:

> Hilary and Dana are sitting at the table in the Post Office play area. Before them are envelopes, seals, stamps, and a mailbox. They are writing letters, then inserting them in the mailbox at the corner of the table. They have repeated a "write a letter, put in an envelope, seal, stamp, and address it" procedure two times. They mail their letters, retrieve them and then pretend to read the messages.
>
> Suddenly, Hilary begins to scribble rapidly on her paper. She shows Dana her scribbles and Dana says, "Baby, you're bad!" They both giggle and continue making and sending letters to one another.

Further, in contrast to the literacy demonstrations prior to our intervention that seemed frequently isolated and randomlike, these literacy demonstrations became increasingly more *interactive* as children used literacy as a medium for social exchange.

> Kent and Ricky have been trying to get Dana's attention for some time during the play period, but she has not responded. They retreat to the post office and decide to write to her. Huddling together, Kent dictates, "Dear Dana," and Ricky writes. Finally, the note is finished and inserted in an envelope. The boys walk toward Dana at the office play center and pretend to knock.
>
> They approach Dana. "Dana! Dana! Here!" They hand over the envelope giggling and covering their faces with their hands. She smiles, scans the envelope, opens it, pretends to read the note, and returns it very carefully to the envelope. Kent leans toward her and says, "You wanna come over to our house?' Then they both run back to the post office and repeat the entire note writing routine.

Along with the greater interaction, came a dramatic change in *role-taking* as children became postal workers, office managers, advocates of social issues, and librarians. In the following example, children are demonstrating their knowledge of library routines and authenticating role definitions.

> David and Scott are playing in the Library Center. David runs over to the teacher and says: "Mrs. G., want to come and get a book?" She comes to the center.
> Both boys help her look for a book. Mrs. G. selects *Where the Wild Things Are*. Scott then "marks" a card with a stamp. David records the same information on a larger paper. Scott tells her that the check mark refers to the day she must bring the book back.

In sum, rather than isolated instances of children scribbling or coloring, literacy demonstrations within the enriched play environment tended to become more functional for these young children and more embedded in their play activity. As a result, the play itself appeared to lend greater coherence and meaning to literacy, supporting the children's exploration of its multifunctional nature. In short, as these two activities interacted in the enriched centers, a new and more dynamic relationship between them seemed to emerge.

CONCLUSIONS

The results of our study suggest that literacy-enriched play centers have the potential to influence young children's literacy activities in early childhood settings. The contextualized settings and ready availability of numerous literacy-related props appeared to influence the frequency of children's engagement in reading and writing activities through play.

We would argue, however, that even more important than frequency, these enriched play centers fostered more sustained and involved literacy interactions. In doing so, the literacy demonstrations began to resemble what Heath (1982) defines as literacy events, that is, "occasions in which written language is integral to the nature of the participants interactions and their interpretive processes and strategies" (p. 50). As these demonstrations appeared to gain event-like status, they began to influence not only children's participation in reading and writing, but the play itself. Through children's playful elaboration and uses of written language, play as a tool to make sense of and learn more about their world was enhanced as well.

Our study, of course, cannot provide evidence that enriched play centers necessarily result in increased literacy learning. More controlled studies across varying groups of preschoolers in different settings need to be conducted before such weighty claims can be made. However, our study does suggest that literacy-enriched play centers, can indeed, make a difference in children's literacy behaviors through play. With well-planned design changes in the physical play environment, play may become an increasingly important context for the discovery and exploration of written language.

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SHARED BOOK READING IN AN EARLY START PROGRAM FOR AT-RISK CHILDREN

Jana M. Mason, Bonnie M. Kerr, and Shobha Sinha
University of Illinois at Urbana-Champaign

Christine McCormick
Eastern Illinois University

There is increasing evidence that children from socioculturally diverse homes in this country are at risk for school failure (Anderson & Stokes, 1984; Heath, 1983; Teale, 1986), in part because our schools place a high value on the dominant middle-class approach to becoming literate. Teachers often expect all school children to be able to participate in book reading discussions in a similar manner and to have experienced similar literacy events and practices with their parents. Yet, because families do not engage in identical literacy practices or interact with their children in the same ways, children come to school with varying knowledge about literacy and varying interest in its acquisition.

How might our public schools best meet the needs of children with diverse backgrounds and dispositions? One hypothesis is that an early and intensive exposure to literacy will lead to greater awareness of and interest in reading and writing. However, little is known about how to identify children who might benefit from early literacy experiences in a school setting, how such a program ought to be organized, or what might be possible long-term benefits. This study was set up to determine the effectiveness of early and intensive exposure to materials designed to promote emergent reading, in a language- and literacy-focused program for at-risk preschoolers.

The study evolved from the series of studies (Mason, McCormick, & Bhavnagri, 1986; McCormick & Mason, 1989a) in which the use of easy-to-recite Little Books has been shown to match young children's interest in print and to have a positive impact on the early reading skills of children who typically do not prosper under the systematic basal reading instruction in school. Simple, short stories were constructed to provide obvious connections between spoken and printed words so that 4- and 5-year-old children could readily learn to recite the books. These materials were developed in the context of Mason's (1980) developmental model of early reading. In this model Mason proposes a first level of reading development in which children recognize print by using the intent of a message within the context of signs and labels. At this time children begin to recognize and name letters but do not use letter information to learn or remember words. According to Venezky (1975), knowledge of letter names facilitates the process of reading by making the letters immediately familiar. Ehri (1984) argues that letter names give identifiable referents with which to associate phonemes. This initial level of understanding is followed by a second level of reading development in which children become aware that letters signal particular sounds and that these phonetic sounds, usually beginning with initial consonants, can be heard in words and used as cues for word recognition.

Children who have not experienced informal literacy activities that are compatible with the first level of reading may be at risk for failure if they receive the typical reading instruction in kindergarten and first grade which emphasizes activities that match the second level of development. Walsh, Price, and Gillingham (1988) found letter naming knowledge (Level I knowledge in Mason's hierarchy) varied widely in the middle of kindergarten and letter naming speed was strongly related to later progress in reading. The Little Books are materials to be used in activities appropriate for children at the first level of early reading in that they offer a meaningful, context-supported introduction to print which allows all children successful opportunities to view and appreciate print and to behave like a reader (Mason & McCormick, 1981).

In the McCormick and Mason (1989a) study, a Head Start program in a small midwestern city was supplemented with a Little Book Program. Half of the groups read and discussed six Little Books in school. These books were then mailed to the children at home, and another set of six little books were mailed during the kindergarten year. The remaining groups received a similar amount of small group discussion time and an equivalent amount of mail. Results at the end of the Head Start year showed that the children receiving Little Books readily learned to recite the text and that these children often "read" the Little Books at home, frequently involving their families in their use. These children also showed greater interest at home in telling and hearing stories, trying to print, and trying to read than did children who did not receive the books. Follow-up on the children's progress in kindergarten showed that the children receiving the Little Books were better at approximating the text with a written-language-like story for both familiar and new Little Books and that they were able to identify significantly more letter sounds than the control group. A parental assessment of their child's interest in literacy activities at the end of kindergarten was also significantly higher for the group of children receiving the Little Books.

Although the positive impact of the Little Books was fairly dramatic, especially the finding that these materials used in shared reading at school appeared to generalize the acquisition of letter-sound knowledge, a serious limitation was that the number of children in the kindergarten follow-up was quite small. Thus a large-scale demonstration was needed to substantiate these findings.

Although much research has appeared regarding the kinds of early reading skills many children bring to kindergarten and first grade (e.g., Mason, 1989; Teale & Sulzby, 1986), little systematic research has examined ways to break cycles of school failure. Encouraging suggestions, however, appear in an edited book by Allen and Mason (1989). Common themes include familiarizing by preschool teachers with the tenets of emergent literacy and a wide array of reading and writing activities, and encouraging them to become aware of the mappings of spoken language to written language. Building on those themes, then, our question is whether a Little Books Program, which allows children to discuss story themes and recite the printed texts, provides a unique opportunity for emergent literacy progress.

METHOD

Research Setting: The Early Start Program

The Early Start program is a developmental program aimed at individualizing instruction and socialization for 4-year-old children deemed at risk for school failure in the state of Illinois. The program uses several screening measures for entry. One measure, the Chicago Early Assessment (Early Assessment and Remediation Laboratory, 1984) is a test of visual and auditory discimination, fine and gross motor development, and overall language abilities. This formal screening measure is used in combination with family and social factors acquired from home visits and interviews. Should a child score below a prespecified score on any of the subtests, or come from a family setting in which it is felt directed school activities would be beneficial to the child, the child can be enrolled in the program free of charge.

The research was carried out in two Early Start schools that were located in a mid-sized urban setting. A teacher, full-time aide, and half-time helper worked together in each classroom. The half-day program of instruction included whole class time, free time, small group time, snack and recess. The teachers were committed to enhancing overall language and concept development during whole class time when they read trade books to the children, did calendar work, shared current events, and engaged the children in music and body movement. During free choice time, which the teachers called "Discovery Time," children chose from centers around the room, principally, blocks, writing, fine motor (which included puzzles and game manipulatives), science, dramatic play, library corner, art area, a sand table (which was often converted to other textures such as water, corn, and colored rice), and quiet or private space. The children participated in a number of these areas during each day, and informally interacted with each other and adults while doing so. During small group work the children were grouped according to similar needs or strengths and participated in teacher-directed activities. Throughout the day the children received individualized attention in whatever activity they were participating.

In addition, the program was set up to involve parents in their children's education. The school held conferences three times a year where progress evaluations were discussed with parents. The teachers conducted home visits and had "Parent/Child Days" in school when only children accompanied by a parent could come to school. They also provided parent workshops on parenting and school issues.

Participants

There were seven teachers and aides and three teacher helpers involved in the study. Each teacher taught two classes of children, except for the head teacher who taught one class in the afternoon and whose aide served as the teacher in that classroom during the morning. Each class had no more than 21 students and in all, 240 children from 12 classes participated in the study. Complete data were available for 232 children, and all analyses are based on that smaller number. All of the children were identified as at risk for school failure. The majority were from low socioeconomic status families, and an approximately equal number represented white and black cultural groups. Boys slightly outnumbered girls. There were 52 girls and 63 boys in the treatment group and 57 girls and 60 boys in the control group. Fewer than 10 children spoke a language other than English at home.

Materials

The Little Books (McCormick & Mason, 1989b) are books designed for promoting beginning literacy development. The books consist of 6–9 pages with one simple line drawing per page and words or phrases that closely match each illustration. The books are stories, as defined by Prince (1973), in which an event culminates or changes or the initial theme finishes with an enjoyable twist. For example, the story *Snowman* depicts the building of a snowman. Each page adds a feature to the illustration until he is completed. The pages read, "One big snowball. Two big snowballs. Eyes and nose. Great big smile. Hello Frosty!" The books are written about familiar topics for young children and feature high frequency content words. These characteristics combine to make the books simple, predictable means for engaging young children in discussions that emphasize meaning and print awareness and acquisition of new knowledge about written language features. It is important to emphasize that the Little Books were developed to complement, rather than to replace, language and literacy activities or trade book reading. The Little Books highlight print and meaning at a level where young children can begin to make connections between the spoken and written word by developing independence in print awareness and the act of reading.

Procedures

In May of the preceding school year the Little Books were introduced to school personnel and procedures for their use discussed. In September another workshop for teachers was held and follow-up visits were made with each teacher when she began using the Little Books to insure fidelity to the treatment. Background data on families were collected through a September home visit by the teacher.

The 12 classes were grouped into morning and afternoon classes and then three from each group were randomly assigned to either the treatment or control conditions. Teacher influences were controlled by having each teacher serve as her own control. Each teacher taught one class including the Little Books as a small group activity, and one class without using them. For example, one teacher used the same following small group activities for both classes: sink/float chart and materials, making necklaces that demonstrated the concept of three, using tools, and puzzles. She added Little Book reading for her Little Book class by shortening the small group activities.

The intervention began in mid-September, and continued throughout the year for all weeks longer than 3 days, with a book per week shared, resulting in 28 books being read and discussed. On Mondays, the teacher introduced the book with her enlarged copy to small groups of students. She showed the cover, requested predictions or discussed the illustration and title, and then read it aloud to the group. The children were encouraged to join in the reading when they felt comfortable. After one or two readings to the group, the teacher encouraged the children to read it with her, first as a group, and then individually. Sometimes children took turns reading each page; other times, they were encouraged to read the whole book "by themselves" or in subgroups (e.g., the boys read to the girls or vice versa). Mistakes were gradually corrected through rereadings and by teacher directing children to the words, such as pointing while reading. Harsh, immediate corrections were avoided, especially when the meaning used by a child was the same as that conveyed by the text.

On Wednesday the books were reintroduced and reread with small groups. During these sessions discussion of the book topic and individual reading attempts were made by the children. On Fridays, books were read as a group and the teachers designed book-related followup activities. Some of these activities were print-related, such as writing a class story similar to that of the Little Book, whereas others were text- but not print-related, such as making a class snowman mural to hang in the hallway when the book was about building a snowman. At the end of the week each child in the Little Book classes received an individual copy of the book to take home and share with family members. This extensive practice with each book was a critical feature of the program.

All children were individually assessed on two measures: The Test of Early Language Development (TELD) (Hresko, Reid, & Hammill, 1981) and an emergent literacy criterion measure, drawing on the Beginning Educational Assessment (BEA) (Mason & Stewart, 1990), which assessed print concept development, letter knowledge development, and reading and writing development. The TELD was chosen to measure overall language development and consists of measuring form and content of language in both expressive and receptive modes. The emergent literacy measure was developed to pinpoint changes in letter, word, and book concepts. Reading and writing development subtests were added to the emergent literacy measure for the spring testing. Tests were given in September or October, and readministered in April.

After the Little Books program was initiated monthly observations of all classes were held to account for literacy activities other than those surrounding the Little Books as well as to account for how the Little Books were being used. A second parent questionnaire was collected in the spring to acquire information on home literacy including children's interest in reading and writing. The Little Books program ended in the middle of May at the end of the preschool program for that year.

RESULTS

The first question we asked was how children progressed in literacy development over the course of the year. Table 1 presents the descriptive statistics over the year for the three dependent measures that were given at the beginning and end of the school year for the treatment and control groups combined. At the beginning of the year all groups were comparable, and over the year substantial growth occurred for overall language development (TELD), print concepts, and letter knowledge. Writing and reading abilities, measured in the spring, showed that the children were also emerging as readers and writers.

The principal question was, however, whether the treatment influenced emergent literacy development. End of year means for language ability, print concept knowledge, and letter knowledge indicated that children in the treatment classrooms had significantly higher posttest scores over control classrooms on letter naming, *F*(1,

Table 1

Beginning and End of Year Descriptive Statistics for Treatment and Control Groups Combined on Language and Literacy Concepts

	M	*SD*	Maximum Possible	Mean Proportion Scores
Language Ability				
Pretest	10.79	5.66	38	.28
Posttest	18.17	5.59	38	.48
Print Concepts				
Pretest	7.84	3.41	20	.39
Posttest	11.59	3.35	20	.58
Letter Knowledge				
Pretest	5.07	12.16	66	.08
Posttest	25.45	21.37	66	.39
Writing posttest	2.54	.83	7	.36
Reading posttest	1.84	.87	4	.46

Note. $N = 232$

224) = 13.70, $p < .01$. There were insignificant group differences in print concepts and no differences in language abilities as measured by the TELD.

To test for treatment effects it is also important to consider the variables as a group of factors because literacy concepts cannot be completely isolated from each other. They interact and influence each other in as yet unknown ways. Before calculating a multivariate analysis of variance, variables were first correlated to uncover and remove overlapping constructs. The correlations presented in Table 2 show that the strongest correlations existed for pretest and posttest versions of the same test. Across-measure correlations were within the low to moderate range, indicating that the constructs being measured were fairly distinct and could be included in a multivariate model.

A multivariate analysis of variance (MANOVA) compared students on a set of dependent variables: language ability, print concepts, letter knowledge, writing and reading. After several iterations, the best fitting model used the following set of independent variables: children's pretest language and literacy knowledge, interest in literacy (based on beginning-of-year home interviews), problems during test-taking (such as refusing to answer verbally), gender and intervention condition (Little Book treatment or no). This model was significant with Wilkes' Lambda Multivariate $F(40, 961) = 38.08$, $p < .001$. Moreover, the independent variables as a set contributed to significant effects for each of the language and literacy concepts measured. Multivariate $F(8, 224)$ tests were significant beyond the .001 level for letter knowledge = 71.87, language ability = 481.49, print concepts = 457.02, writing = 352.30, and reading = 137.17.

Table 2

Pearson Correlation Matrix of Language and Literacy Concepts

Measures	Language Ability Pretest	Language Ability Posttest	Print Concepts Pretest	Print Concepts Posttest	Letter Knowledge Pretest	Letter Knowledge Posttest	Writing
Language Ability Posttest	.53	1.00					
Print Concepts							
Pretest	.47	.42	1.00				
Posttest	.34	.47	.36	1.00			
Letter Knowledge							
Pretest	.19	.07	.15	.28	1.00		
Posttest	.24	.17	.14	.37	.45	1.00	
Writing	.33	.22	.26	.30	.29	.36	1.00
Reading	.11	.20	.09	.13	.14	.10	.18

For each of the significant dependent variables, contributions of specific independent variables were determined through univariate analyses of variance (Table 3). A complex pattern emerged. There were strong pretest influences on each of the posttests. Treatment affected letter knowledge. Letter knowledge influenced print concepts, posttest letter knowledge and writing. Thus, extensive and intense exposure to Little Books affected beginning print awareness which over the course of the year influenced literacy development. These results supported the hypothesis that the Little Books are effective in promoting early literacy development.

Furthermore, testing problems, which were characterized by refusing to answer verbally, had a deleterious effect for those concepts measured using oral responses. Consequently, those children who refused on the pretest to answer verbally performed poorly on posttest language and reading measures. Also, there were gender effects for letter knowledge and writing, with girls doing better in those areas than boys.

Not surprisingly, a child's interest in reading and writing at home influenced literacy concepts, but not overall language concepts. A child who engaged in reading and writing play at home did better on recognizing and naming letters, handling books and writing. Of course, it is impossible to determine if interest promoted ability or ability promoted interest, but a relationship between the two was found.

CONCLUSIONS

These results demonstrate that an informal shared book reading with Little Books will enhance certain aspects of early literacy development for at-risk preschool children. The Little Books intervention contributed to letter naming knowledge which for

Table 3

Univariate F Tests with F(1,224) for Language and Literacy Concepts following MANOVA

Measure	Language Ability Posttest	Print Concepts Posttest	Letter Knowledge Posttest	Writing	Reading
Treatment	.27	1.03	13.70**	.29	.01
Letter Knowledge Pretest	1.27	8.94**	48.14**	13.42**	2.39
Language Ability Pretest	33.57**	4.80*	4.28*	7.12**	.01
Child Interest	3.05	8.397**	4.29*	4.33*	3.24
Gender	1.70	2.11	9.31**	9.37**	.65
Print Concepts Pretest	8.52**	8.73**	.30	.70	.03
Testing Problem	9.83**	.33	1.07	1.72	5.29*
Constant	20.37**	29.66**	.91	48.80**	20.00**

*$p<.05$. **$p<.01$.

young children has a significant relationship with subsequent reading progress (Ehri, 1984; Mason, 1980; Walsh, Price & Gillingham, 1988). The fact that the Little Books intervention contributed to the critical early reading skill of letter naming indicated that the majority of these preschool children were at the initial level of reading. The children were context-bound and using the messages within the context of the books to gain access to the individual letters (Mason, 1980). Thus, the Little Books were helping children to build foundations for more conventional literacy abilities. The fact that letter knowledge can be enhanced through sharing the Little Books, especially when few, if any, direct attempts were made to teach letter knowledge, supports the hypothesis of levels of development and the role of context-supported reading as one of the earliest forms of print awareness (Mason, 1980). The Little Books program helps to develop beginning print awareness in a meaningful, supportive context. The simplicity of the books makes it possible for the children to connect informally the graphic symbols and letter names.

The Little Books provide an important, perhaps essential, balance in a preschool literacy program. They balance the importance of the print and the story. Few trade books offer this balance because their rich story lines and long texts, though fostering language and listening comprehension, are not intended to make print concepts accessible. Smolkin, Conlon, and Yaden (1988) have begun to look at the learning that occurs from print-salient books, and found that when print is separated from the text, such as in dialogue bubbles, it is more readily noticed by young children.

In summary, simple books can show useful connections between print and story with a brief and familiar story line to supply a meaningful context, the presence of only a few words on each page, and strong picture support on each page. Children can easily learn to read the text and to use the repeated phrases and illustrations to remember the text on subsequent readings. The materials guide young children through that brief but essential period when letter name and basic print concepts are acquired. This research indicates that context-supported reading, which draws on supportive and informal use of simple-to-read books, can provide an effective supplement for Head Start or other good language-focused preschool programs for at-risk children.

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EFFECT OF EARLY LITERACY INTERVENTION ON KINDERGARTEN ACHIEVEMENT[1]

Linda M. Phillips and Stephen P. Norris
Memorial University of Newfoundland

Jana M. Mason and Bonnie M. Kerr
University of Illinois at Urbana–Champaign

A substantial number of concepts about language are acquired prior to entering school (Clay, 1975). These concepts may seem trivial (what is right-side-up for a book, what on the page is print, that print carries meaning, etc.), but they are fundamental to learning to read and write (Ferreiro & Teberosky, 1982). The mere presence of print in the home, however, is not sufficient for children to acquire these concepts; they must also take part in interactive family experiences with print and print-related matters (Durkin, 1982). One of the most important of these interactions is book reading.

However, there tends to be a low incidence of book reading in low-income families (Heath, 1983; Teale, 1986). In contrast, middle-class children start school already familiar with letters and words, and able to glean useful information from looking at books and listening to stories. Since most school-based programs are geared toward middle-class children, a mismatch between the literacy acquired at home and the literacy required to participate in school is virtually assured for low-income children. With the aim of lessening the risk of school failure for such children, we extended the home intervention study of McCormick and Mason (1986) into a full-kindergarten-year Little Books Program aimed at encouraging parent-child and teacher-child book reading.

The Little Books (McCormick & Mason, 1990) are designed to capitalize upon what children know. Specific features of the books include the following: (a) they are thematic and contain familiar topics to increase the child's expectation that text should make sense, (b) they are written using everyday high-frequency content words to facilitate links between spoken and written language, (c) there is a strong fit between illustrations and text to make clear that both text and picture frame the meaning, (d) they are written using phrases and simple sentences to promote comprehension at the minimal discourse level, (e) the story ends with a culminating idea to create a sense of intrigue or amusement and provide text closure, and (f) a guided participation model (Rogoff, 1986) underlies the presentation and practice of the books to foster children's confidence.

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The objective of the present study was to determine whether a beneficial effect on children's literacy development accrues from the use of the Little Books with kindergarten children, and whether there are differential effects according to the treatment type, community status, and school type.

METHOD

Sample

The study was conducted in Newfoundland, Canada. Access in principle to approximately 40 schools from three school boards was granted. We grouped the schools into rural village (drawing students from only one small community), rural collector (drawing students from a number of small communities in an area), and urban. Urban communities were not large by many standards. But they typically have either a hospital or a medical clinic that provides emergency or short-term care, a fire hall, at least one bank, a library, a shopping center, and other amenities associated with an urban center. The rural communities typically have one or two small grocery or general stores and a post office. From each of these groupings, four schools were randomly selected. From each group of four, schools were assigned randomly to one of the treatment groups (home, home and school, school, and control).

Of the 12 schools, 6 had one kindergarten class, and 6 (4 of the urban schools and 2 of the rural collector schools) had two kindergarten classes but the same teacher. When a teacher had two classes, both received the same treatment. In the urban schools, class size averaged 17 children; in the rural collector schools, class size averaged 18; and in the rural village schools, class size averaged 20. The overall class size averaged 18 children. All children attended school for one-half day. In each school, all kindergarten children participated in the project. In all, 18 classes from 12 schools and 325 kindergarten students participated. Complete pretest and posttest data were obtained for 309 children.

Instruments

Three tests were used: The Metropolitan Reading Readiness Test (MET) (Nurss & McGauvran, 1987), the Circus Listen to the Story Test (Circus) (Educational Testing Service, 1976), and the Emergent Literacy Concepts Test (ELC). The MET and Circus are widely used group tests, and the ELC is an individual test designed for the study to acquire more detailed information on emergent literacy than provided by the group tests.

The MET measures auditory memory, letter recognition, and language and listening; the Circus assesses recall and interpretation of oral language; and the ELC determines whether children have acquired such basic concepts about print as identifying the front of a book, giving meanings for words (for example, *bird*), and classifying (e.g., "What are some foods?"). The group tests have two levels of difficulty: MET-1 and Circus-A were used as pretests; MET-2 and Circus-B as posttests. The ELC has two forms, the difference being that ELC-2 includes two sets of items not on the ELC-1: reading words from the Little Books in and out of context.

Procedures

Treatment. Twenty-four weeks of Little Books intervention, using one Little Book per week, complemented the provincially prescribed Language Development Program. There were four treatment levels.

In Treatment 1, a control group received no Little Books.

In Treatment 2 (use of Little Books at home only), a new book was given to each child at the start of each week for the child to take home and read with parents. Parents' cooperation was solicited beforehand and a demonstration, using a video of a parent and child working with several books, and an explanation of the materials was given. Also, a set of guidelines adapted from McCormick and Mason (1986) was prepared and given to parents. The guidelines provided the following information: overview of the project; description of Little Books packet; general pointers; suggestions for reading the Little Books (make a cozy arrangement, talk about the main idea, read book aloud, have child help you read, and encourage child to read often); suggestions for improving parent-child interaction; suggestions for use of the color, count, and opposites books; suggestions for use of ABC books; and recommendations for making books with children (tell a simple story, give stories a snappy ending, choose words and phrases carefully, and organize the pages of the book).

In Treatment 3 (use of Little Books both in school and at home), a different book was introduced by teachers each week. Prior to the first week, teachers attended a workshop on the project and were given a set of guidelines drawn from McCormick and Mason (1986) that included the following information: introduction to the early literacy intervention program; how to prepare for the lessons; procedures for using the Little Books (opening, modelling, tryouts, and closing); how to follow-up after the lesson; and general pointers. Teachers were asked to follow this routine: on Monday, introduce the Little Book for that week by reading it to the whole class like any other story during reading time; on Tuesday to Thursday, work with smaller groups of children one group at a time and assist each to read the book; on Friday, ask each child to read the Little Book, and send the Little Book for that week home with each child. Approximately 10–15 minutes each day was devoted to the materials. Parents were instructed as in Treatment 2.

In Treatment 4 (use of Little Books in school only), teachers proceeded as in Treatment 3, but did not send the books home.

Pretest data collection. Pretest data was collected from mid-September to early October, 1988. MET-1 was administered to each whole class over 7 sittings, each lasting from 10 to 15 minutes. Circus-A was administered to groups of 5 or 6 children and took about 25 minutes. The ELC-1 was administered to as many randomly selected students from each class as time permitted. Testing time for ELC-1 was approximately 30 minutes per student.

Posttest data collection. MET-2, Circus-B, and ELC-2 tests were administered in late May to early June, 1989, following a testing schedule similiar to the pretest schedule.

RESULTS

Means, standard deviations, and sample sizes for MET and Circus pretests and posttests by treatment and site are presented in Table 1. We note four conclusions from these data. First, sample retention was >89% for all cells. Second, all means were >1 *SD* below the U.S. norm. Canadian norms are unavailable on these measures, but there is little reason to believe that they would be substantially different from those of the U.S. Thus, on average, these entering Newfoundland kindergartners seem at risk of school failure. Third, on average, urban kindergartners scored higher on all measures, and village and collector students scored about the same. Fourth, differences in posttest means are not related clearly to treatment.

A planned multivariate analysis of covariance on these data was not possible because there was a significant Treatment × MET-1 interaction in the two-way ANOVA with treatment and MET-1 as factors and MET-2 as the dependent variable. Instead, a multivariate linear regression was performed with MET-1, Circus-A, treatment, and site regressed on MET-2 and Circus-B. Results are presented in Table 2. The strongest predictor of MET-2 and Circus-B was MET-1. Moreover, both pretests were significant predictors of both posttests in the univariate and multivariate tests. Neither treatment nor site had significant effects on either posttest. However, there was a significant MET-1 × Treatment interaction in the univariate case with MET-2 as the dependent variable. The interaction occurred as follows: in the home and school and school only treatments, students scoring lowest on MET-1 performed worse on MET-2 than the control group, while students scoring highest on MET-1 performed better on MET-2 than the control group; for the home only treatment, students scoring lowest on MET-1 scored higher on MET-2 than students in the control group, while students scoring highest on MET-1 performed the same as students in the control group.

There was a significant MET-1 × Site interaction in the multivariate case. Urban students scored highest on all tests. The village students scored higher than the collector students on both pretests but lower on both posttests.

The MET is not overall an emergent literacy test, but a measure of ability to achieve in school. Thus, it could be argued that use of the Little Books should not affect MET scores. However, performance on some subtests, such as Beginning Consonants and Letter Recognition on MET-1, and Beginning Consonants and Sound-letter Correspondence on MET-2, ought to be improved by the Little Books since the books expose children to meaningful print. An ANOVA using treatment and the sum of the aforementioned MET-1 subtest scores as factors, and the sum of the aforementioned MET-2 subtests as the dependent variable, showed no treatment by MET-1 subtest interaction. A subsequent ANCOVA controlling for the MET-1 subtests showed significant treatment ($p<.001$) and MET-1 subtest effects ($p<.001$) on the MET-2 subtests. Post hoc comparisons using Tukey's HSD test showed that adjusted posttest means for all three treatments (home only = 14.1; home and school = 16.2; school only = 14.6) were significantly higher than the adjusted posttest mean for the control group (12.5), and the home and school adjusted posttest mean was significantly higher than the adjusted posttest means for the home only and the school only treatments.

Table 3 presents the means, standard deviations, and sample sizes for the ELC-

Table 1

Means, Standard Deviations, and Sample Sizes for MET and Circus Pretests and Posttests by Treatment and Site on Entire Sample

		Pretests		Posttests	
Treatment	Site	MET-1	Circus	MET-2	Circus
Control	Collector	41.9	13.5	37.2	22.6
		14.2	4.6	8.2	7.8
		18	18	18	17
	Village	45.0	12.6	34.5	20.9
		14.5	5.3	11.2	6.7
		20	21	22	20
	Urban	43.5	15.0	40.0	24.5
		15.8	4.1	13.9	7.3
		44	44	42	42
Home	Collector	35.7	12.2	37.2	21.4
		18.2	5.7	12.5	6.0
		36	36	38	38
	Village	35.6	14.7	30.3	19.9
		13.9	14.7	11.9	7.1
		15	16	15	16
	Urban	45.8	15.0	42.6	23.9
		14.5	2.9	13.1	6.0
		31	31	30	30
Home/School	Collector	47.8	13.9	42.0	22.5
		14.9	4.3	15.3	7.1
		31	31	30	30
	Village	38.5	12.1	36.8	19.1
		14.1	3.4	14.2	6.8
		17	17	17	16
	Urban	43.1	14.8	46.4	26.1
		13.9	5.7	13.6	7.0
		28	28	27	27
School	Collector	36.3	12.8	34.2	22.9
		14.5	4.9	14.9	8.3
		22	22	22	20
	Village	42.2	14.5	41.5	21.6
		12.9	3.8	11.3	8.0
		22	22	22	22
	Urban	38.5	12.8	37.2	21.4
		18.2	4.7	15.8	7.8
		35	35	31	31

1 and ELC-2 tests by treatment. Performances on ELC-1 are approximately equal. However, on ELC-2 the control group scored lower than all three treatment groups, which in turn scored approximately the same. ANOVA results showed no treatment by ELC-1 interaction. An ANCOVA controlling for ELC-1 showed significant treatment ($p = .007$) and ELC-1 effects ($p < .001$). Post hoc comparisons using Tukey's HSD test showed that the adjusted posttest means for all treatment groups (home

Table 2

Summary Regression of MET-1, Circus-A, Treatment, and Site on MET-2 and Circus-B

	Dependent Variables			
	MET-2		Circus-B	
Independent Variables	B	Beta	B	Beta
MET-1[abc]	0.623	0.712	0.276	0.588
Circus-A[abc]	0.396	0.133	0.398	0.249
Treatment				
(Home)	1.950	0.104	0.349	0.035
(Home/School)	−0.613	−0.032	1.606	0.156
(School)	−2.227	−0.116	−2.760	−0.267
Site				
(Village)	−3.404	−0.199	−2.731	−0.297
(Collector)	3.416	0.219	0.836	0.100
MET-1 by Treatment[a]				
(by Home)	−0.154	−0.367	−0.053	−0.235
(by Home/School)	0.113	0.274	0.015	0.066
(by School)	0.093	0.217	0.029	0.128
MET-1 by Site[ac]				
(by Village)	0.110	0.289	0.074	0.362
(by Collector)	−0.162	−0.472	−0.053	−0.286
Circus by Treatment				
(by Home)	0.308	0.241	0.129	0.187
(by Home/School)	−0.129	−0.100	−0.161	−0.230
(by School)	−0.096	−0.073	0.114	0.161
Circus by Site				
(by Village)	−0.221	−0.190	−0.135	−0.217
(by Collector)	0.258	0.244	0.130	0.229
Constant[abc]	7.247		5.266	
R-squared	0.674		0.611	

[a] $p<.05$ for MET-2. [b] $p<.05$ for Circus. [c] $p<.05$ for multivariate test.

Table 3

Means, Standard Deviations, and Sample Sizes for ELC-1 and ELC-2 by Treatment

	ELC-1			ELC-2		
Treatment	$\bar{X}$	*SD*	*n*	$\bar{X}$	*SD*	*n*
Control	80.0	23.9	18	128.1	34.8	18
Home	85.7	25.4	19	168.7	43.0	18
Home/School	93.2	30.5	25	172.6	48.6	24
School	87.3	27.2	7	164.3	64.6	6

only = 171.4; home and school = 162.9; school only = 166.6) were significantly higher than the adjusted posttest mean for the control group (137.5). No other comparisons were significant.

To test the hypothesis that the significant effect was an artifact of a posttest measure specifically designed to be responsive to the Little Books, the analysis was repeated with the items directly related to the Little Books removed from ELC-2. A less significant treatment effect ($p = .079$) was found.

DISCUSSION

Overall Performance

On average, the Newfoundland kindergartners studied are at risk of school failure. They perform like some minority groups, about 1 *SD* below the norm, a result consistent with the results of the Southam News Survey (Southam Newspaper Group, 1987), in which Newfoundland was reported to have the highest rate of basic and functional illiteracy in Canada (approximately 44%), and with achievement on the Canadian Test of Basic Skills (King, 1981) (administered nationally at Grades 4, 8, and 12), on which Newfoundland children score consistently below the Canadian national norm (Department of Education Newfoundland and Labrador, 1989). School children in Newfoundland "experience persistent disproportionate school failure" (Ogbu & Matute-Bianchi, 1986, p. 73) in a manner similar to some ethnic minorities in the United States and Canada. However, given that Newfoundlanders do not belong to an ethnic minority in Canada, the explanations of their school failure force us to look beyond the visible features of ethnic and cultural minorities to the underlying beliefs, attitudes, and expectations that Newfoundlanders hold about literacy.

Only the briefest summary of some of the social, political, and economic factors that may influence contemporary literacy levels in Newfoundland are possible in this paper. Placing value on literacy is a recent phenomenon in Newfoundland, where compulsory schooling did not take effect until 1942 and was not enforced until the mid-1950s. Most early settlers were unlettered fisher-folk from England, and Irish immigrants from peasant stock. The ruling British fishing admirals were interested primarily in their own wealth and not the security and independence of the early settlers. Settlers were forced to exchange their yearly catch of fish for food and supplies, creating a subsistence form of living. Despite attempts by early missionaries to establish schools, it was not until the middle half of this century that the perceived need for literacy became widespread. Before that time, most employment was fishing, there was no established context for literacy because the early settlers did not need or perceive a need for it, there were too few schools, and access to education was limited because of a small population in a large number of isolated communities scattered along 5,000 miles of coastline. As a consequence, most of the parents of the children in this study belong to only the first or second generation of Newfoundlanders to experience compulsory schooling. Even so, many did not complete school, and defer to the schools in the job of literacy development. It is in such a context that the low literacy achievement in Newfoundland must be understood.

Treatment Effects

The lack of treatment effects on either the MET-2 or Circus-B were at first disappointing. Face validity judgments indicated that the tasks required by the tests were of the type that beginning readers should be able to do, and thus that the Little Books should lead to higher performance on them. It seems, however, that the effect of the Little Books is more specific. The ELC-2, which was designed to measure directly the knowledge the Little Books were intended to foster, was quite responsive to the treatment. Even when the items specifically related to the Little Books were removed, a significant though somewhat diminished effect was found, indicating that the result generalizes beyond the Little Books themselves. This led us to hypothesize that there would be an effect of treatment on those subtests of the MET that related to emergent literacy. The results confirm this hypothesis. However, the fact remains that the Little Books are intended in the final analysis to improve children's reading, taken as the construction of meaning, and reading in this sense was not measured by any of the instruments. Thus, comparisons between treatment levels at the end of subsequent grades, when measures of meaning construction can be used appropriately, are quite important.

Interaction Effects

The MET-1 × Treatment interaction, showing that the lowest achieving students profited most from the Little Books when they were used at home only and the highest achieving students when used in school only, helps support the hypothesis that the home has a crucial role to play in literacy development. It can be assumed that the students achieving the highest upon entering school already have had a rich home literacy experience. This experience typically promotes knowledge of a metalanguage about literacy (words such as "title," "story," "word," "printed") that forms the basis of the language of instruction that teachers presuppose children know (Templeton, 1986). So, those children from homes that encourage such a metalanguage are at an immediate advantage, because they can understand teachers' talk. Children who come from backgrounds that do not promote this metalanguage are highly likely to be at a disadvantage, given that the schools will assume they have it. However, those low achieving children using the Little Books in their homes, where knowledge of a metalanguage of instruction would likely not be assumed, probably had for the first time an opportunity to learn this metalanguage and consequently were able to profit more from school instruction. Without this home intervention, the schools might have continued to presuppose a knowledge of language the children did not possess. This metalanguage hypothesis also would explain why higher achieving students were able to profit more than lower achieving students from the Little Books used in school only.

Although differences between urban and rural students come as no surprise, it is a challenge to understand the MET-1 × Site interaction, showing that students from collector schools scored higher than students from village schools on MET-2, having scored lower on MET-1. Some research suggests that a school presence in a community is instrumental in supporting and transmitting the significance of education (Spindler, 1987). Some children in the collector schools are from communities that have no school. This fact may be reflected in their pretest scores being lower than children from village schools. On the other hand, once in school, children in village schools are not exposed to as many teachers and students from other communities as children in collector schools. Maybe the diversity of the during-school experiences of the collector group had a beneficial influence upon end-of-year performance.

In the final analysis, the value of the Little Books must rest on long-term effects on reading. Will there be differential reading effects at the end of Grades 1, 2, and 3 favoring the Little Books treatment? We hope to be able to report on Grade 1 effects in the near future.

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PARENTS' PERCEPTIONS OF CHILDREN'S READING AND WRITING DEVELOPMENT IN A WHOLE-LANGUAGE KINDERGARTEN PROGRAM

Beverly J. Bruneau, Timothy V. Rasinski, and Richard P. Ambrose
Kent State University

Many educators would agree that whole language is an idea whose time has come. Dissatisfied with the systematic, analytic, and abstract approaches to literacy education found in a traditional basal approach, many teachers have opted for a more holistic, teacher-student negotiated whole language orientation. Goodman and Goodman (1981) have described a whole-language approach as one that focuses on the construction of meaning, on the processes of prediction, selection, confirmation, and self-correction, and on the functional uses of reading and writing. The role of the teacher in whole-language programs consists of creating stimulating learning environments, providing relevant materials, and being a source of encouragement and support for young readers and writers.

The role of parents, too, is increasingly recognized as crucial to successful school experiences. In her review of research on parental involvement in schools and learning, Henderson (1988) reports that the role parents play in facilitating student improvement is undeniably important. From the home environment to school involvement, when parents are actively involved in positive ways, improvement in student achievement follows. Moreover, Williams and Stallworth (1983–84) found that parents do seek active and substantive roles in their children's education.

In reading, the substantive role that parents can play is being increasingly recognized (Anderson, Hiebert, Scott, & Wilkinson, 1985). Rasinski and Fredericks (1988) reviewed the literature on parental roles in literacy instruction and have suggested a set of principles to guide that involvement which include: making literacy activities a regular part of family life involving real reading and writing activities, creating and supporting an informal home literacy environment, and capitalizing on and fostering children's internal interest in reading.

Although they acknowledge that parental involvement is critical, whole language advocates have not explored adequately the full range of issues that are related to parents. Parental perceptions and support of curriculum changes toward a whole language orientation is an area of particular concern. Parents are not always aware of innovations in curriculum and may resist efforts to change an existing curriculum they have viewed as wholly satisfactory.

The purpose of the present study was to determine parents' perceptions of a kindergarten program in the face of change toward a holistic language/literacy curriculum. Do the beliefs parents have about literacy learning influence their acceptance of a curricular change? It seems it is critical to document specific concerns of parents beyond general acceptance or rejection of the curriculum. Sensitivity to even minor concerns of parents would seem important to help teachers gain parental trust and cooperation and to move toward greater levels of parental empowerment. These research questions framed this study: (a) What beliefs do parents hold about kindergarten children's development of reading and writing? (b) Do parents believe the whole language approach matches their own expectations of a kindergarten reading and writing program? What reasons do parents give for stating that programs meet or fail to meet their expectations? (c) What concerns do parents express about their child's reading and writing development?

METHOD

Participants

The participants in the present descriptive study were parents of children enrolled in an all-day kindergarten at a university-based child development center. The center serves approximately 175 children from infancy through kindergarten. Children are primarily from middle to upper-middle SES families. The curriculum of the center is based on the principles of "developmentally appropriate practice" for young children as outlined by the National Association of Educators of Young Children (Bredekamp, 1987). Classes are organized to allow children maximum choice of activities, and instruction is planned around theme units.

In previous years the kindergarten maintained a "letter of the week" alphabet program, the same program used in nearby public schools. During the summer of 1988, the newly hired kindergarten teacher initiated a change from this letter-emphasis program to a whole-language approach, a change in curriculum enthusiastically accepted by the center director. Parents were informed of this curricular change through a fall newsletter, and the program was formally explained to parents at the annual Parent Orientation Meeting held in October. In addition, many parents spoke informally with the kindergarten teacher during conferences and the teacher reported talking about literacy learning during these individual meetings frequently and throughout the year.

Data Collection and Analysis

In May a letter was sent to parents of the 25 children attending the kindergarten asking for parental perceptions of their child's reading and writing development during the kindergarten year. Nine parents, all mothers, volunteered to be interviewed during May or June. Four mothers had older children who learned to read through a more "traditional approach." Three of the mothers were teachers and 5 others had completed or achieved some college education. The interviews were conducted by the three principal researchers who were affiliated with the university but not with the center. Open-ended interview questions were designed to elicit responses in the parents' own words (Spradley, 1979). (Table 1 contains the interview protocol.) The interviews were audiotaped and transcribed for analysis.

Table 1

Parent Interview

1. Talk about your child's reading and writing development during the kindergarten years.
2. How do you think children learn to read and write? Is this the same feeling you had before?
3. What kinds of literacy related activities do you do at home with your child?
4. Has the way your child is taught reading changed the way you do literacy related activities at home?
5. How would you describe the approach taken to the teaching of reading and writing by your child's teacher?
6. What kinds of concerns or questions do you have regarding your child learning to read and write?

Each interview was analyzed through categorical analysis (Spradley, 1979) in which domains were constructed and organized into taxonomies. An individual case was constructed for each parent based on the categorical analysis. Each of the nine cases was then searched for themes relevant to the research questions.

RESULTS

Beliefs About How Children Learn to Read and Write

Each of the parents began by describing early home factors they believed were important for literacy development. All 9 mothers stated it was important to have *books available* in the home and all believed it was important to *read regularly* to their young children. For example, Mrs. H said that both her children learned to read through "exposure and being read to" (Transcript 5). All parents reported that they read nightly with their children at home.

Five parents mentioned that not only did they read to their children, but that they also believed it was important to encourage their children to *try reading* during these regular reading sessions. Mrs. N described a pattern of "sharing" the reading of a book with her child, "I would read it first, and then she would read. Then she'd read it over and over again" (Transcript 7). Mrs. D described a similar pattern, "Usually, he'll want to read a book and then he'll want me to read a book" (Transcript 4).

Four parents stated they believed an important component of children's learning to read involved parents *modeling* reading behavior. Mrs. A summarized, "My husband and I model reading a lot so that she would grow to think reading is the natural thing to do" (Transcript 1). Mrs. D stated, "Both my husband and myself read a lot" (Transcript 4).

The *role of phonics* in early reading was mentioned by 5 of the parents, although their opinions varied. Mrs. S. believed most strongly in the importance of a "systematic phonics program" as a way of preventing failure in reading. She stated that her daughter knew the letters and sounds because she had taught her prior to kindergarten. Mrs. B believed that children learned differently, "Some learn by sight and some by a systematic phonics approach" (Transcript 2). Mrs. M thought phonics had no place in initial reading experience, "I'm not big on phonics, even if the school had used it, I would not use it at home" (Transcript 6).

Two parents discussed the importance of children developing knowledge of literacy through reading *environmental print* as a beginning of reading. For example, Mrs. A reported, "We'd be driving and she'd see 'ACME' in the car and know it was the grocery store. She's read 'Coke' on cans and when she was 3 or 4 she would read signs on TV" (Transcript 1).

Several parents discussed the importance of *functional use of writing* in the home. Five parents mentioned their children were involved in writing notes and letters to family members. Often the children printed these notes themselves with the parents providing the correct spelling. Mrs. C said she often wrote her daughter notes and placed them in her lunch box. She believed that attempting to read these notes was important in motivating her child to read.

Changing attitudes. Mrs. K indicated that her belief in how children learned to read and write had changed as a result of her son's kindergarten experience. She commented on how she was now approaching her youngest child's attempt at reading, "I am less compulsive about how children spell and I am less apt to correct a word read" (Transcript 9). Mrs. A felt more confident that what she intuitively did at home was helpful to her daughter's reading development. "I thought I was doing it (valuing pretend reading) to make myself feel better. I knew there were a couple of girls who were really reading and so I thought I should work with her in a more systematic manner. I thought maybe I need to sit down with her and finger each word on a piece of paper. It (the year's experience) reassured me that what I was doing was okay" (Transcript 1).

Did the Whole Language Program Match Parent Expectations?

Of the 9 parents, 7 believed there was a close match between their expectations of a kindergarten literacy program and the kind of experience their child encountered daily in the kindergarten program. However, this was not entirely true for 2 of the parents.

Mismatches with expectations. Mrs. K was initially concerned that her son would not be properly prepared for first grade. During the course of the school year, she changed her thoughts, aligning her beliefs with the kindergarten program. In describing her change in feelings, Mrs.K emphasized the importance she at first attributed to phonics instruction. Her three older children had had a phonics-based kindergarten program, and she was concerned about the work her youngest son was doing in kindergarten. She was worried because she did not receive "feedback about her son's performance" in a familiar manner (i.e., workbook pages). The lack of a systematic phonics program did not match with her expectations of a kindergarten program which "prepared" children to be successful in first grade. Even at the year's end, some doubt remained, "I am uncertain. The kindergarten program in our district used 'Letter People' and emphasized sounding out and my son is not good at sounding out" (Transcript 9).

However, by the end of the year Mrs. K appeared to balance her worry about her son's lack of ability to "sound out" words with his excitement about books and reading, which was greater than that of her other children. Specifically, she mentioned his attitude toward reading and feelings about himself, "He wasn't afraid to read books" [Transcript 9]. Mrs. K spoke very positively of the risk-free environment. The classroom had "lots of praise, no criticism." She liked the way the teacher and children supported each other. Mrs. K appeared to believe that even though her son might not have the same phonic knowledge as other children he would not be disadvantaged. "I'm concerned that some of the neighborhood kids can write words and are familiar with some sight words that he is not tuned into yet. I think he'll do okay if he gets the right teacher and the right environment" (Transcript 9).

Mrs. S, a remedial reading teacher, on the other hand, remained firm in her belief that the new program was poor because it did not teach phonics in a systematic fashion. She attributed the failure of her junior high students to a lack of foundation in phonics. Furthermore, Mrs. S was concerned about the problem of poor self-esteem which she observed concurrently with lack of reading progress. "Anything you can do to prevent a child from feeling negative about reading, you have to do" (Transcript 8). According to Mrs. S, a systematic phonics program in which children progress through clearly defined skills is the best way to prevent failure in reading. Mrs. S's two older children had learned to read through a "letter of the week" program and from her perspective not only learned letters well, but enjoyed it. "The children eat food associated with the letter and do a lot of positive things like singing and dancing" (Transcript 8). In contrast, Mrs. S believed that her daughter's whole-language experiences were not enjoyable, describing her child as being extremely frustrated with invented spelling. She felt it was unfair to ask children to spell before they had learned their letters. Mrs. S. believed this experience endangered her daughter's self-esteem. She considered withdrawing her child from the program, but decided to have her remain because movement to a new classroom might be distressing. To counteract the "poor instruction," Mrs. S implemented a systematic reading and writing program with her daughter for 30 to 45 minutes each evening.

Matches with expectations. The remaining 7 parents believed the program matched well with their expectations of an appropriate approach to beginning reading. All felt that the match was due to the support and encouragement their children received. Mrs. D summarized the importance attributed to the affective climate, saying "The main thing is my son is with adults who care about him" (Transcript 4).

The role of the teacher seemed to be especially important to the parents in describing why the program was well-matched with their expectations. Labeling objects around the room was, in particular, one teacher practice that many parents viewed as positive. Mrs. M confessed that she, too, began to label objects throughout her home. The mothers described the teacher's enthusiasm for books which they saw transmitted to their children. They commented on being impressed with the amount and quality of children's literature as well as the interest their children were developing in authors and illustrators. All positively described the manner in which the teacher interacted with children and modeled acceptance of individual differences. Mrs. D noted, "There was a real valuing and encouragement of any effort" (Transcript 4).

Other Concerns with the Whole-Language Curriculum

Two of the parents had no concerns with the kind of literacy program offered to their children during the year. Mrs. C, in fact, described the program as a natural extension of her own interactions with her daughter, stressing that informality of instruction, functional use of print, and involvement of the teacher were all important components she believed in. This parent stated she believed an important reason for her daughter's good progress was the compatibility between home and school. Mrs. D also had no concerns, indicating that her son was "adaptable" and could easily adjust to a variety of situations.

Five parents were concerned about the process of invented spelling. Mrs. S expressed the greatest reservations, indicating that her daughter did not have the background, although interestingly, she was aware that her daughter did know all of her letters and sounds because she had taught them to her prior to kindergarten. Mrs. S repeatedly stressed that when children are required to do something in which they have not had adequate training, they will not be able to do the task, and will feel frustrated. Mrs. S's concern reflected her belief that invented spelling was not the way to develop knowledge of writing in young children.

Although the other four parents also described feelings of frustration their children experienced, they were more concerned with how to help their child adjust to invented spelling. These children apparently had done much early writing at home, and the parents had helped through supplying the correct spelling of words. Mrs. A noted her daughter wrote frequently prior to kindergarten. Much of this early writing included letter writing to relatives and friends and responding to children's magazines. "She would dictate, we would spell and she would write the words" (Transcript 1). However, Mrs. A observed that as invented spelling was encouraged in the school her daughter, who had been a "writing maniac," became frustrated. She reported that her daughter would say, "I don't like writing because the teacher won't help me. She won't tell me how to spell the words" (Transcript 1). Mrs. A described her own frustration during this period, "I thought now we have really set her up. We were telling her how to spell words. Now she is stuck. She often knows what she is doing is incorrect. She knows it doesn't look right" (Transcript 1). Mrs. A noted that during this time she was able to talk over her problems with the teacher, and as the teacher worked with her child, her daughter became less frustrated with the process.

Mrs. N described her daughter's frustration in not being able to reread her invented spellings. "It was very hard in the beginning of the year because she would bring things home and say, 'Mommy you read it' and I would have absolutely no idea of what it was meant to say. She would be very upset, and we would have to sit down with her and say, you can read it. That was a terribly difficult few months" (Transcript 7).

The second set of concerns reflected the parents' worries about first-grade placement. Mrs. S believed that without a strong phonics program her daughter would not have the skills to be placed in a top reading group and would come to see herself as a poor reader. Despite her changing expectations, Mrs. K continued to worry that her son would be handicapped by his lack of phonics knowledge. On the other hand, three parents were concerned about the different classroom atmosphere their child might encounter with a skills-based first grade. Mrs. M worried about how her daughter would react to a structured classroom. Mrs. B hoped the new school would accept her child's individuality. Mrs. K believed her son would do fine if he got the "right teacher." Two parents also expressed concern, believing their daughters might be bored with a limited approach toward reading and writing. Both were optimistic, however. One called her daughter "adaptable" and the other noted that her daugher was a "survivor."

IMPLICATIONS

This exploratory study opened a small window which allowed us to begin to understand the perceptions of a particular group of parents whose children were engaged in a developing whole language program. One theme which, although not surprising, is strongly supported by the findings of this study, is how seriously this group of middle SES parents viewed their role in helping their child learn to read and write. All reported they believed literacy development begins at home, and through their words they have illustrated how seriously they have undertaken this responsibility through regularly interacting with their children in reading and writing experiences.

It seems that one reason for high degree of acceptance of the whole-language approach is that it validates and extends literacy activity that had been occurring in the home. The informal caring, low risk environment, and the focus on the affective dimensions of reading are some important characteristics that were found both in the home and in the kindergarten curriculum. How other parents (such as Mrs.S) who hold an analytic orientation toward literacy instruction and engage in those activities at home would respond to a whole language curriculum is a question worth pursuing.

For this group of parents acceptance of a whole language approach toward early reading activities was not difficult. Parents responded enthusiastically to their children's growing interest in reading books. Developing an enthusiasm and a love for stories was a goal shared by both parents and the teacher. Several parents also reported that during the course of the year they were able to share responsibility for reading with their children. The parents seemed more comfortable in helping their children in these early reading attempts. Mrs. H stated that if her daughter doesn't know a word, "I tell her what it is" (Transcript 5). Mrs. K reported that she had "learned" to be more tolerant of her son's errors in reading. She noticed they did not interfere with his understanding of the story, and his enthusiasm for reading appeared greater than that of his brothers and sisters.

Interestingly, the parents who expressed satisfaction with the whole language kindergarten seemed to feel that the emphasis on informal social interactions and development of positive feelings in children about themselves as readers led their children to reading. The one dissatisfied mother felt that the approach taken to reading instruction actually resulted in diminished self-esteem. In both cases parents were concerned about their children's affect, although their perceived outcomes were considerably different. It appears that these parents are seriously concerned about their children's affective disposition toward reading and how they view themselves as beginning readers.

General acceptance not withstanding, some parents voiced strong concern about one component of the program, helping children with writing through invented spelling. Parents were concerned that their children did not have appropriate skills to be successful at this task. For some, encouraging invented spelling was an approach that was contrary to their previous pattern of supplying children with correct spellings. How we can better help parents prepare their child for writing is an important area of further investigation.

Parents also expressed concern about what would happen to their children in first grade. This demonstrates how aware parents are of the effects of major curriculum changes on their child's cognitive development and on self-confidence.

It should not be surprising that many parents will have major reservations about whole-language approaches in their entirety. Such curricula are foreign to their own educational experiences and notions about proper approaches to education. Teachers need to be sensitive to the concerns of these parents. While realizing that they may never convince some parents as to the merits of a whole-language classroom orientation, frequent communications, explanations, and opportunities to observe in the classroom will assuage many parental concerns. Moreover, teachers can provide enough evidence from first-hand experience or published reports to demonstrate to parents that whole-language approaches have been successful in promoting word recognition proficiency, mature spelling, and continued success in school.

Finally, the findings underscore the importance of parents and teachers working together. Several parents who were highly supportive noted that when they had questions they could go to the teacher who would listen to their concerns and at those times provide them with information. The overall feeling that the teacher was working for her child appeared to be a strong factor in the parent believing this kindergarten experience was worthwhile.

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WORD LENGTH AND FIRST WORD RECOGNITION

Luci Lipscomb and Philip B. Gough
University of Texas at Austin

How do children learn to read words encountered for the first time? Gates (1949) acknowledged that a child will use a variety of techniques to help identify and remember printed words. If useful, these techniques will be retained and used for future word identification. The child has discovered a helpful strategy for approaching unfamiliar words.

Some strategies employed by children prove to be inadequate for discriminating between new words. For example, total reliance on context or only attending to the initial letter may soon fail to provide the child with the precise word. If children rely on such methods, learning to read can come slowly and with many inaccuracies (Gates, 1949). It is necessary for the child to recognize which techniques are unproductive and replace them with successful ones.

Samuels (1976) suggests that when learning to recognize a word, children associate the written form of the word with the spoken form. At this stage, this written word is an arbitrary collection of written symbols for the child, and the connection between the printed and verbal word forms can be arbitrary as well. This paired-associate learning can be successful or unsuccessful for the child depending upon how unique that association is.

Gough and Juel (1989) and Gough and Hillinger (1980) have shown this association to be selective in that the child selects a specific cue used to associate the verbal pronunciation and the written stimulus, distinguishing it from other stimuli. The cue selected may be any characteristic of the word, such as the configuration or even the font, which may be used to discriminate the word from others. Gates and Boeker (1923) found that children did not look at the entire word for recognition but picked a distinctive cue to remember the word.

Gough (1985) conducted a study in which a thumbprint appeared on a card with a novel word. Although the children learned to identify this card faster than words on other cards, when shown the same word without the thumbprint, few could read it. In addition, when the thumbprint was shown on a card with a different, previously known word, the word originally associated with the thumbprint was given. The original word was given even when the thumbprint was shown on an otherwise blank card with no word on it. Gough's study indicates that the cue selected by children may even be an extraneous cue not directly connected with the word at all and that attending to an extraneous cue (e.g., a thumbprint) may cause the children to ignore salient cues.

A variety of other cues from which a child might pick are suggested by Samuels

(1976). He writes, "The cue upon which the learner focuses his attention may be a letter, letter group, word shape, in fact, any characteristic which helps to set this word apart from others" (p. 271). Another study of first word learning by Gough (in preparation) supports Samuels' view that the cue chosen might be a component of the word, such as the first or last letter. Children were taught to read four words on individual cards by standard paired-associate learning procedures. After mastering these words, the children were shown cards with the same words, except on half of the cards, the first half of the word was hidden. On the remainder of the cards, the last half of the word was hidden. The children were shown the cards and asked to identify the words. The results showed that the children tended to recognize the word when shown either the first half of the word or the last half, but not both. It seems if they selected a cue from one part of the word, they ignored the other part of the word.

These studies showed that children select specific cues to recognize a new word. The present study was conducted to determine if children might choose a property of the word, such as length, for identifying a word if the length of the word distinguishes it from the other words learned.

METHOD

Subjects

Forty-eight 4- and 5-year-olds served as subjects in the study. All of the children were enrolled as students of a private daycare center in an upper-middle class neighborhood in Austin. The group consisted of 26 girls and 22 boys, all Caucasian. The students came from the classrooms of several different teachers.

The main criterion for inclusion in the study was the inability to read the four target words used. The daycare center did not provide any direct reading instruction to the children. Alphabet recognition was only taught as it was brought up naturally during the activities of the day. When pretested on alphabet knowledge, no significant differences were found between children in different groups in the study.

Materials

Eight words were selected to be used. Four of the words were four-letter animal names. The remaining four words were six-letter animal names. Each four-letter name was carefully yoked to a six-letter word for similarities in vowels, configuration, and familiarity (e.g., bear-beaver) to reduce the probability that these features might be identified as distinguishing cues. The words were each printed on a separate 3 × 5 index card. The words used were *bear,* yoked with the word *beaver*; *pony* yoked with *monkey*; *duck* yoked with *turtle*; and *fish* yoked with *lizard.*

Groups

Two groups of children were presented words which were all the same length except one. Twelve children were taught three 4-letter animal names and one 6-letter animal name (the 4446 Condition) whereas twelve others received three 6-letter words and one 4-letter word (the 6664 Condition). The word of distinctive length was substituted for the yoked word of uniform length each time. For example, *bear* and *beaver* were substituted for each other since they were the yoked pair.

In both of these groups, the word of distinctive length was alternately selected from the four options so that each of the options appeared an equal number of times. Therefore, three of the children within the 4446 Condition were presented the words *bear*, *pony*, *duck*, and *lizard*, with *lizard* being the six-letter word, substituted for *fish*. Three more children in the same condition received the words *bear*, *pony*, *turtle*, and *fish*, where *turtle* was the six-letter word, substituted for *duck*. *Monkey* and *beaver* were also rotated as the six-letter words within the 4446 Condition. This was done to lessen the chance that one word might be unique in ways other than length and thereby provide additional cues for recognition. In the 6664 Condition, the four-letter animal name was rotated in the same manner among the four alternatives.

Twenty-four other preschoolers served in the remaining two groups. In these groups, four words of uniform length were learned. Twelve children were taught the four-letter animal names (the 4444 Condition) while the last group of twelve were shown the six-letter words (the 6666 Condition). The words contained minimal consonant and vowel repetitions, and words within the same groups did not begin or end with the same sound. These were the same words used in the 4446 Condition and the 6664 Condition. Identical procedures were followed to present these words as were used with the other groups.

Procedures

A pretest trial was conducted individually with each child. The words were presented on 3 × 5 index cards one at a time. The child was asked if he could read the word. Of the 50 students tested, only 2 could read any of the words and these students were eliminated from the study. When a child responded that he did not know the word, the test administrator told him what the word said. Therefore, after every presentation the word was correctly pronounced while it was still in view.

The words were presented in the same manner for subsequent trials. Paired-associate learning procedures with anticipation and correction were used. The child was shown a card and asked to read the word. Whether the word was read correctly or not, the test administrator repeated the correct word after each trial. The responses were written on a record sheet. The words were shown in random order for each trial to avoid having the children simply learn the sequence of presentation.

The mastery criterion was set at correct identification of all four words in a group for two consecutive trials. A maximum of 15 trials was presented. Overall, 79% of the 48 children reached the criterion within 15 trials, although there were distinctive differences between the groups as will be discussed later.

RESULTS

The learning curves were plotted to show the average number of correct responses per trial for the 12 children within each group. For the two groups where the majority of the words were four letters in length (the 4446 Condition and the 4444 Condition), the learning curves showed that on the average students in the 4446 Condition did reach the criterion of correctly identifying all four of the words for two consecutive trials faster than students in the 4444 Condition. The difference between the learning rates of these two groups can be attributed to the word of distinctive length (the six-letter word) in the 4446 Condition. The six-letter name was learned with fewer trials than the four-letter names required.

The learning curves of the children in the groups where the majority of the words were six letters in length (the 6664 Condition and the 6666 Condition) showed similar results. The percentage of correct responses for the students were averaged and plotted for each of the fifteen trials. The children in the 6664 Condition on average reached the criterion level faster than the children in the 6666 Condition, where the words were uniform in length. Once again, the difference in the number of trials required to reach the criterion level was due to the word distinctive in length, the four-letter word. The six-letter word did not require as many trials to learn correctly as did the four-letter words.

The data were analyzed by a $2 \times 2 \times 15$ analysis of variance with the first factor being the majority word length, the second factor being the length of the minority word, and the last factor being the repeated measure of trials. No significant difference was found for the main effects of majority or minority word length. The children in the 4446 Condition and 4444 Condition did not learn the words significantly faster or slower than the children in the 6664 Condition or the 6666 Condition. In addition, it was not statistically significant whether the minority word was four letters or six letters in length.

A statistically significant difference was found for the interaction between the majority and minority word length. It did not matter whether the majority of the words contained four or six letters, or whether the minority word contained four or six letters; the difference in the rate of learning occurred when the minority word was different in length from the majority of the words in the group. When one word was distinctive in length, as in the 4446 Condition and the 6664 Condition, the children learned that group of words significantly faster ($p<.05$) than the children who were given words of uniform length, as in the 4444 Condition and the 6666 Condition. The chart in Figure 1 compares the learning curves of all four of the groups.

DISCUSSION

The results support the hypothesis that the children used the property of length as a cue for reading a novel word. The children did learn the word distinctive in length significantly faster than the words of uniform length in both the 4446 Condition and the 6664 Condition. The chart in Figure 2 shows that the four-letter animal name was even learned faster when it was included in the 6664 Condition compared to the other four-letter names in either the 4446 Condition or the 4444 Condition. This was true even though the same four-letter word appeared in each group. In other words, the word *fish* was learned faster when it was in the 6664 Condition than when the same word was in the 4446 Condition or the 4444 Condition.

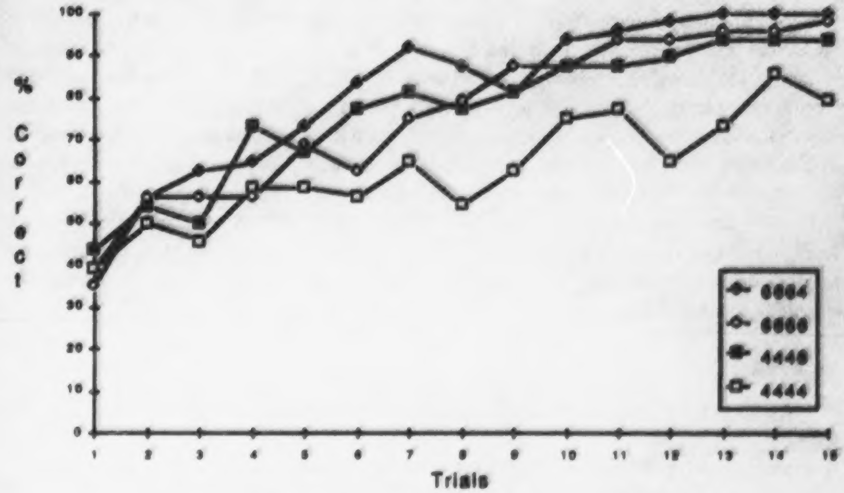

Figure 1. Learning curves of all four conditions.

Similarly, the six-letter animal name was learned faster when it was the word of distinctive length in the 4446 Condition as compared to the other six-letter names in either the 6664 Condition or the 6666 Condition.

A second hypothesis of interest concerned the effect of word length on initial word learning. Would words of longer length provide more cues from which to select and actually be easier for the children to learn? The results indicated that although the

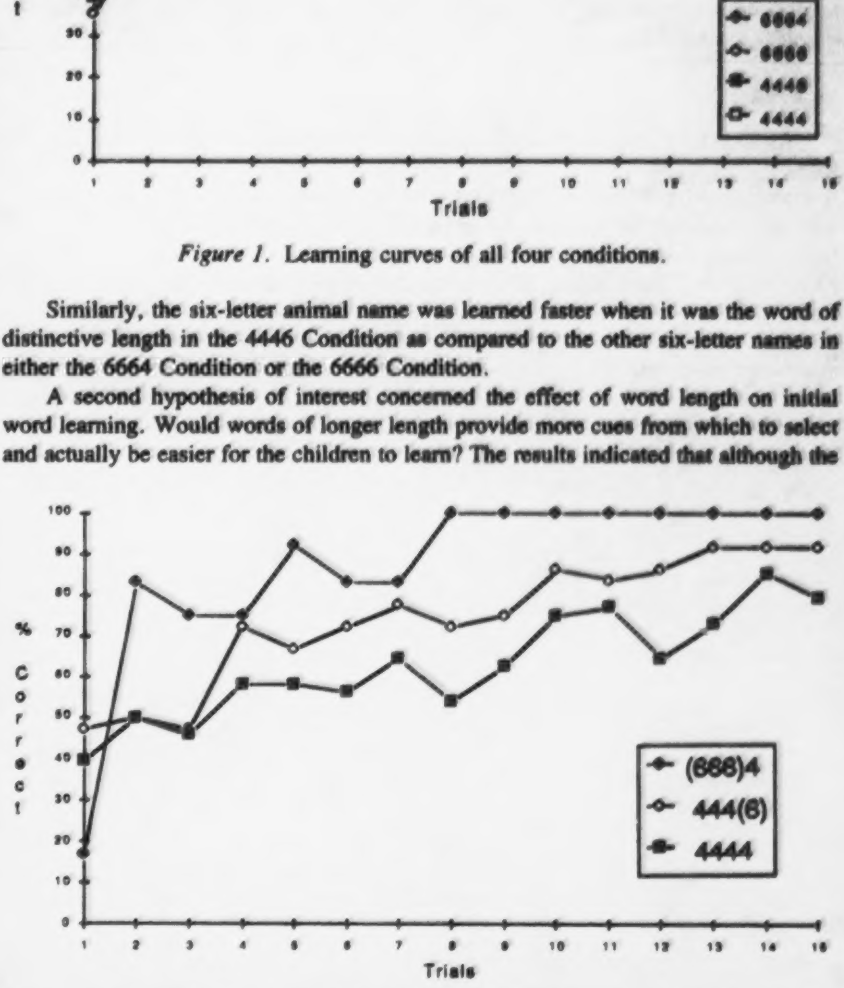

Figure 2. Learning curves of only the four-letter words from the 6664 Condition, the 4446 Condition, and the 4444 Condition.

two groups containing primarily six-letter words tended to be learned faster, the difference was not significant. It is important to note that the percentages of children reaching the criterion level was quite varied. Only 50% of the students in the 4444 Condition reached the criterion level while 100% of the students in the 6664 Condition met criterion. The 6664 Condition not only provided the advantage of the word of distinctive length, but the six-letter words seemed to provide sufficient cues for all the children to learn all of the words. The other two groups fell between these two with 75% reaching criterion in the 4446 Condition, and 93% achieving the criterion level in the 6666 Condition. It seems possible that the longer words provided a greater number of cues from which to choose, thus supporting the idea of selective association in initial word learning.

Implications

As shown by this study, if length distinguishes a word from other words being learned a beginning reader will make use of this property to aid in word identification. If students have not learned to recognize the letter-sound correspondences, they may use such cues as length to build up an initial bank of sight words. At this point, any feature which helps a child differentiate one word from another might be beneficial. Knowing even a few words in this manner may allow children to read their first text, which can then help them discover more discriminating cues within words. Recognizing a property of a word, such as length, also signifies that the child is at least attending to the word form. This in itself indicates initial steps toward reading.

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A SYLLABIC-UNIT APPROACH TO TEACHING DECODING OF POLYSYLLABIC WORDS TO FOURTH- AND SIXTH-GRADE DISABLED READERS

John Shefelbine
University of Texas

Skilled readers identify words by breaking them down into syllables. Studies recently reviewed by Adams (1990) indicate that for skilled readers syllable parsing (a) is automatic and instantaneous, (b) occurs during visual scanning and at the same time that individual letters are being identified, and (c) is used for reading pseudowords as well as real words (see Mewhort & Campbell, 1981). Poor decoders, on the other hand, have a difficult time reading polysyllabic words even when they can read single-syllable words (Just & Carpenter, 1987; Samuels, LaBerge, & Bremer, 1978). This inability to figure out "long" words can be particularly crippling in the middle and upper grades where vocabulary is not controlled and where large numbers of polysyllabic words occur in reading materials across all subject areas. Helping students with limited syllabication ability is a pressing need.

Unfortunately, conclusions regarding effectiveness of syllabication instruction have been mixed in the relatively few studies that have been conducted (Canney & Schreiner, 1977; Cunningham, Cunningham, & Rystrom, 1981; Groff, 1971; Johnson & Baumann, 1984). Researchers have attributed these disappointing results to theoretical and practical problems associated with rules for dividing words into syllables. Common concerns include a lack of theoretical support for dictionary rules for syllabication; the number, complexity, and low utility of some rules; and instructional procedures that "presuppose" pronunciation—students are required to pronounce words before dividing them.

The present study developed and tested an approach to syllabication instruction that greatly de-emphasizes the importance of rules for dividing words and that, instead, stresses (a) *syllable automaticity*—the ability to identify individual syllables effortlessly and automatically or at sight, and (b) *syllable pattern identification*—the identification, in a flexible manner, of possible patterns of units in a polysyllabic word. In a simplified version of how these components interact when reading polysyllabic words, students identify possible units within a word, relying mostly upon familiar syllables but figuring out unknown units when necessary. They identify, pronounce, and blend the units in a flexible manner until a match is made with a word in their oral vocabulary.

THEORETICAL BACKGROUND

Single-Syllable Units

Adams (1990) maintains that skilled readers' ability to parse and identify long words is based on their knowledge of spelling patterns. This does *not* mean that students simply need to learn a limited number of syllables. Such an interpretation is incorrect not only because there are too many syllables (over 5,000 according to Adams), but also because a set of letters that constitutes a syllable in one word may not be a syllable in another word.

What kinds of spelling patterns, then, might be emphasized in a program of instruction? Although syllabication is more than identifying a set of memorized syllables, teaching certain syllable units should still be helpful. Affixes that function as syllables are worth considering because they are limited in number, occur frequently, and, especially in the case of suffixes, are reasonably consistent across words.

Support for another, more general category of syllable unit is found among linguists who agree that only certain combinations of vowels and consonants are permitted in English syllables, and who generally accept the existence and utility of two types of syllables—open or free-vowel syllables (e.g., *mo*) and closed or checked-vowel syllables (e.g., *om*) (Groff, 1971). The ability to identify open and closed syllables in print not only enables students to pronounce frequently occurring kinds of units, but also should help them perceive likely units without the aid of division rules.

Additional evidence in favor of teaching affixes and open and closed syllables is present in a study by Shefelbine, Lipscomb, and Hern (1989). They found a significant relationship between students' sight knowledge of these syllable units and their ability to read real, polysyllabic words; they further noted that some students could not accurately pronounce common syllables in isolation even when given plenty of time. Clearly, an important part of identifying syllables in a word is being able to "read" each syllable unit. Some students do this poorly and hence are unable to read words even when the words are divided for them.

Programmatically, this study developed syllable automaticity first by teaching students vowel generalizations for open and closed syllables and then by providing much practice in reading a wide variety of such units. As recommended by Adams (1990), Durkin (1989), and others, students were encouraged to pay attention to all letters in a syllable. A strategy for remembering irregular or less easily decoded affixes involved spelling them by letter name.

Syllable Pattern Identification

This variable involves identifying and combining likely syllable units when they are strung together in a polysyllabic word. Although some syllable patterns entail entire units that frequently occur in words (e.g., affixes), others depend on the frequency with which certain strings of letters occur (Adams, 1990). Since more frequent patterns tend to occur *within* syllable boundaries rather than across syllable boundaries, less common interletter associations automatically "pull" the syllables apart. For example, since *d* is 40 times less likely to be followed by an *n* than an *r*, skilled readers perceive a syllable boundry between *d* and *n* in *Sidney* but not between *d* and *r* in *children*. According to Adams, the relative strength of interletter and spelling pattern associations determines which letters are pulled together (and perceived as a unit) and which are pulled apart. For example, *par* is a syllable in *partial* and *partake* but not in *partly* and *parade*. Whether a string of letters is a syllable is partly dependent upon the letters that surround them. Thus, identifying patterns of syllables requires more developed and complex knowledge of letter and spelling patterns than the knowledge needed for reading single syllables in isolation. As far as instruction is concerned, Adams (1990) suggests that teachers encourage students to attend to "likely" letter sequences that occur in syllables, words, and blends and digraphs.

METHOD

Participants

The 51 students in this study all had difficulty with syllabication according to criteria described below. They were selected from four sixth-grade classes in a junior high school and four fourth-grade classes in two elementary schools that "fed" the junior high. The schools were part of a large urban district and served a heterogeneous, lower- and middle-class population. There were 28 fourth graders (14 syllabic-unit instruction and 14 control) and 23 sixth graders (15 syllabic-unit and 8 control). In accordance with teachers' wishes, students were assigned to a condition by class rather than randomly. All of the students within a class who met the criteria participated.

Students in this study correctly read fewer than 13 of 22 polysyllabic pseudowords on a measure that followed a 2 by 2 design: two-syllable versus three-syllable pseudowords and morphemic versus nonsense units, for example, *admem*, *nonjectous*, *sasvop*, and *fudlempo*. Their mean percentile scores (and standard deviations) in word identification, as measured by the word identification subtest of the *Woodcock Reading Mastery Tests* (Woodcock, 1987), were 40.6 (17.1) for the fourth graders and 17.1 (13) for the fifth graders. Vocabulary knowledge was assessed via the vocabulary subtest of the *Stanford Achievement Test* (Gardner, Rudman, Karlsen, & Merwin, 1982). This particular measure was used because items are read *to* students and hence are not affected by poor decoding ability. Vocabulary was included because students with higher vocabulary knowledge should be more successful in matching approximate pronunciations with real words in their oral vocabulary. Mean vocabulary percentile scores were 43.7 ($SD = 25.0$) in the fourth-grade group and 27.4 ($SD = 21.7$) in the sixth.

Instructional Program for Experimental Group

Over a 6-week period, the students in the syllabic-unit instruction group were taken out of their language arts classes and taught 30 10-minute lessons, one lesson a day. The 14 fourth graders were taught as a group by a graduate research assistant. The 15 sixth graders were taught in another group by the principal investigator. Both teachers followed identical lesson plans that included detailed descriptions of teaching procedures and actual content. The instruction was teacher-directed and fast-paced, requiring students to respond frequently and as a group (i.e., chorally).

Four teaching routines formed the core of the syllabication program: transformations, sight syllable practice, practice with real words, and division practice. Initial lessons included only the first two activities. When students became more comfortable reading single-syllable units, practice with real words was added. Division practice was incorporated still later on in the latter part of the instructional program.

Transformations. This routine developed students' ability to read open and closed syllable units (e.g., *om* and *mo*). After an introductory lesson on two basic vowel generalizations (one vowel at the end is long; one vowel not at the end is short), students regularly were asked to read 15 or so open or closed syllables. The syllables were presented in sets of three that all contained the same vowel, for example, *og–mog–mo*. First, the teacher wrote *og* on a chalkboard. The students read it. Then the teacher changed or ''transformed'' *og* to *mog* by adding an *m*. Students now read the new syllable. Next the teacher erased the *g* and the students read *mo*. This process was repeated with other sets of syllables such as *fi–fim–im* and *ab–rab–ra*. When students made vowel errors, the teacher quickly prompted them to apply the appropriate generalization. (Where is the vowel? Is it going to be long or short? What sound? What syllable?)

Sight syllable practice. This routine developed students' ability to identify at sight over 50 affixes and an assortment of Latin roots. Fifteen to 20 syllables were presented during each lesson. Five were new, 5 had been introduced the previous day, and the remaining 5 to 10 were from more distant lessons. Each syllable was practiced in at least four separate lessons.

During a lesson, the teacher wrote each syllable on the chalkboard and asked students to read it. Syllables were reread in random order two more times. Speed was not encouraged since it was important for students to take time to figure out syllables they did not know at sight. Difficult irregular syllables were spelled out by letter name when they were missed or forgotten.

Practice with real words. In this activity, the teacher wrote real polysyllabic words on the board, syllable by syllable but with no spaces or marks between the syllables. After writing one syllable, the teacher paused and the students read it; then the teacher wrote the next and the students read that one, and so on. Students then read the entire word as a whole. When appropriate, the teacher pointed out how accents and schwas cause individual syllables to change. Ten to 15 words were presented and read twice during each lesson. These words, mostly three or more syllables in length, were not selected from any particular source but were meant to be challenging. Students particularly enjoyed this component of the lessons because they felt they were not dealing with ''baby'' words. For example, the following words were used in Lesson 16: *radar, notation, vitamin, deceitful, unchangeable, confidence, preventive, disagreeable, disgraceful, experience, nitrogen, tobacco, cumbersome, reconstruction,* and *adventure.*

Division practice. During this routine, students were again presented with unfamiliar polysyllabic words. This time, rather than being assisted with each syllable, they were encouraged to figure out possible units on their own. The teacher developed their knowledge of possible strategies by modeling thought processes and later by prompting students when they had difficulty. Students were told to look for possible affixes first. They then were to locate likely units within the words, paying particular attention to open and closed syllables. Students were also taught two syllabication generalizations to help them identify open and closed syllable patterns: (a) for a vowel followed by two or more consonants, try a short sound; and (b) for a vowel followed by a single consonant, first try a long sound and then try a short one. The importance of flexibility—locating alternative units if the first ones do not seem to work—was stressed through modeling and prompts and through words that did not follow more common patterns. This latter approach is similar to the "free wheeling" syllabication strategy advocated by Groff (1971).

Instructional Program for Control Group

Students in the control group stayed in their regular language arts classes and received no special instruction. Although the lack of a treatment for the control group is commonly critized in studies of this design, the choice here was deliberate given the weight of the evidence against the efficacy of traditional instruction. To put it more directly, neither the investigator nor the principal and teachers could justify taking valuable class time to teach syllable division rules and provide syllable division practice, activities that repeatedly have been shown to have little effect upon syllabication ability.

Analysis

The dependent measure of students' syllabication ability was the total number of polysyllabic words correctly read on the *Woodcock* and a second graded word list, the *San Diego Quick Assessment* (La Pray & Ross, 1969). The two tests were administered twice, first as a pretest and 7 to 9 weeks later as a posttest. The average number of weeks between testing was 8.

Three-step, fixed entry multiple regression analyses were used to analyze the effectiveness of the instructional intervention. Using posttest scores in polysyllabic word identification on the *Woodcock* and *San Diego* as the dependent measure, pretest scores were entered on the first step, followed by vocabulary, followed by treatment condition.

RESULTS

Students receiving the syllabic-unit instruction made significantly greater progress in their ability to identify polysyllabic words than did those receiving no special instruction. This was true for students in Grade 4, $F(3, 24)=5.4$, $p<.05$; students in Grade 6, $F(3, 19)=13.7$, $p<.01$, and students in Grades 4 and 6 combined, $F(3, 47)=14.5$, $p<.001$. The interaction of grade with treatment was not significant. Nor was there an interaction of treatment with vocabulary. Pretest and posttest means (and standard deviations) of correct polysyllabic words on the *Woodcock* and the *San Diego* were as follows: Fourth grade syllabic unit—64.1 (9.0) and 74.6 (11.0); fourth grade control—60.4 (12.5) and 64.6 (12.7); sixth grade syllabic unit—63.1 (13.5) and 72.6 (16.4); sixth grade control—73.4 (13.6) and 75.6 (12.1); fourth and sixth grade syllabic unit—63.6 (11.4) and 73.6 (13.8); and fourth and sixth grade control—65.1 (14.1) and 68.6 (13.3).

DISCUSSION

Directly teaching students how to pronounce and identify syllable units and then showing them how such units "work" in polysyllabic words appears to be a worthwhile component of syllabication instruction and should help reduce or remediate this source of reading difficulty among intermediate students. It is noteworthy that the few successful syllabication instruction studies reviewed by Johnson and Baumann (1984) also included attention to syllabic units. Cunningham (1975, 1979) taught students to use familiar words to identify unfamiliar one- and two-syllable words. Gleitman and Rozin (1973) taught a simple syllabary to kindergartners.

The results of this study are encouraging when one considers that (a) the students only received a total of 5 hours of instruction and (b) the dependent measures involved real words that were neither directly taught nor patterned after words that were taught. Some might argue that improved comprehension while reading connected text is a more appropriate measure of syllabication instruction programs. We feel such a standard may be misleading because many students will continue to have problems with comprehension because of limited fluency, background knowledge, and/or comprehension strategies. However, over time, students' increased ability to figure out polysyllabic words independently should positively affect other problem areas and comprehension in general, particularly if students read frequently and widely.

There appears to be a definite need for at least some syllabication instruction at the middle-school level. Among the eight fourth- and sixth-grade classes we assessed, 15% to 20% of the students typically were having difficulty reading polysyllabic words. In one low-level sixth-grade class, the proportion was close to 50%. Because of its initial emphasis on single-syllable units and vowels, the syllabic-unit approach in this study seemed appropriate even for students who were having difficulty reading single-syllable words. (A substantial proportion of our students had major difficulty with vowel sounds, so much so that we briefly reviewed vowel digraphs and the final *e* generalization.) The constant use of syllable units, which are unfamiliar and often nonsense-like, discouraged students from relying on sight words and forced them to learn and apply new strategies that focused on spelling patterns. As mentioned earlier, including real but difficult polysyllabic words kept students from thinking they were being recycled through first-grade phonics and noticeably improved their motivation.

There are differing views of the role of vowels in word identification and syllabication. Some reading textbooks state that vowels are relatively unimportant, citing, as an example, our ability to read sentences such as "_ l_k_ t_ r_ _d." Adams (1990) suggests that vowels act as spacers and that replacing them with an asterisk still allows words to be recognized (*mp*ss*bl* = impossible). This may be less true for less common words (*phr*d*s**c and *pp*n*g*). Our own position is that skilled readers can do this because of their well developed knowledge of spelling patterns in general and of certain words in particular. Developing readers, on the other hand, lack this sophistication and need the additional information that vowels provide.

Our next step is to see whether similar or even stronger effects can be obtained by teachers themselves. This entails the development of a minicurriculum of 50 to 100 ten-minute lessons. We have gone beyond our initial 30 lessons because we sense that more than 5 hours of instruction will result in even better performance.

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INCIDENTAL LEARNING OF WORD MEANINGS BY KINDERGARTEN AND FIRST-GRADE CHILDREN THROUGH REPEATED READ ALOUD EVENTS

Cynthia B. Leung and John J. Pikulski
University of Delaware

Researchers continue to seek an explanation for the remarkable growth in children's word knowledge. A fairly reasonable estimate of vocabulary growth by the average child in the elementary grades is about 2,000 to 3,000 words a year (Nagy & Anderson, 1984; Nagy & Herman, 1987). Systematic, aggressive programs of direct vocabulary instruction, however, appear to be able to teach only about 250 to 350 words per year (Beck, Perfetti, & McKeown, 1982). Indeed, there is now fairly good agreement that the vast majority of vocabulary learning takes place incidentally, and that this incidental learning occurs when learners encounter unknown words in independent reading (Nagy, Anderson, & Herman, 1987; Nagy, Herman, & Anderson, 1985). Two recent, well-designed studies suggest that reading aloud to children is also a rich potential source of vocabulary growth (Eller, Pappas, & Brown, 1988; Elley, 1989).

Eller et al. (1988) studied the effects of reading aloud two Brian Wildsmith picture books to kindergarten children. Ten words in each of the books were targeted as unlikely to be known by subjects. The 20 children, none of whom were judged to be reading in the conventional sense, were individually read one of the books and then asked to "read" the book back to the examiner using the illustrations as prompts. Each child's use, failure to use, or misuse of these 20 words in story retellings was the focus of the study. On each of the next 2 consecutive days the book was reread to the child, followed by the child's "rereading" of the book. No special attention was paid to the targeted words; there was no instruction with these words, nor any discussion of them. Approximately 3 weeks later the same procedures were repeated with the second picture book.

The analyses of the kindergartners' reading reenactments showed a significant increase in the appearance and contextually appropriate use of the targeted words with each retelling of the stories. The results suggested that vocabulary growth in young children can take place through exposure to the oral reading of written text. Although these results are encouraging, the study, which was part of a larger investigation, did have a number of limitations, most of which were acknowledged by its authors. Most notably it did not include a control group of children who were not read the stories, nor did it include any pre- or posttest measures of the children's knowledge of the meaning of the targeted words.

Elley (1989) also studied the effects of reading aloud to children on their vocabulary growth. In one study, which included 157 seven-year-old children, classroom teachers read the same story aloud three times to the children as a group. There was no instruction or discussion of the targeted words. Analyses of the differences between the pre- and posttesting of 20 difficult vocabulary words, using a multiple-choice vocabulary test, showed a mean increase of over 15%. This study too had limitations, primarily the lack of a control group.

In a second study, using 127 eight-year-old children, Elley (1989) used a well-defined control group to look at the effects of reading two different books aloud three times. He also added an experimental condition wherein the teachers who read the books to the groups also offered some minimal explanation of the meaning of the difficult words. For one of the books the results were very similar to the results of the first study, showing an increase of about 15% in posttest over pretest scores for the group that was read the book without explanations. When children were read the book aloud *and* the teacher offered some minimal explanation of the difficult words, the gains, however, were almost 40%. The control group improved only about 2%.

Vocabulary gains were much less impressive with the second book —only a 4.4% increase as a result of three readings of the book, and an increase of about 17% when explanations of the difficult vocabulary were added. Thus, large text-specific effects appear to exist in vocabulary acquisition from read aloud events. The Elley (1989) article is also instructive in that it looked at the degree to which six variables (e.g., number of occurrences of the word in the text, the helpfulness of the language context clues) contributed to the probability of a child's learning that word.

Thus, although there is a somewhat limited literature to support the thesis that reading aloud to children is a rich source of vocabulary growth, the research conducted to date is encouraging. The present study was an attempt to extend that literature through a partial replication and extension of the Eller et al. (1988) study, primarily through the use of a control group, through comparing the performance of kindergarten and first-grade children using the same texts that were part of the Eller et al. study, and through using a pretest-posttest design.

METHOD

Subjects

The subjects were 48 children (24 kindergartners and 24 first graders) who attended a largely middle-class suburban school in New Castle County, Delaware. Teachers from four participating kindergarten and four first-grade classrooms were asked to nominate all their students who had no previous history of high absences and whom they considered to be functioning within an "average" range in language development and academic achievement. From those nominated students, 6 children (3 boys and 3 girls) were randomly assigned to a control group and 6 to an experimental group, with the restriction that an equal number of boys and girls be included in each group. The age of the kindergarten subjects ranged from 4 years 9 months to 6 years 9 months; first-grade subjects ranged from 6 years 6 months to 7 years 11 months. The mean age of the kindergarten children was 5 years 11 months, and 7 years 1 month for first graders.

Procedures and Materials

All subjects were given the Vocabulary Subtest from the *Wechsler Preschool and Primary Scale of Intelligence (WPPSI)* (Wechsler, 1967) as a measure of general vocabulary development. This subtest was individually administered by specially trained examiners. All subtests were scored by the second author, a certified school psychologist. The mean raw score of the *WPPSI* for the kindergarten control group was 26.58 and for the experimental group was 25.25. The mean raw score for the first-grade control group was 27.92, and for the experimental group 31.67.

Two picture storybooks by Brian Wildsmith, *The Owl and the Woodpecker* (1971) and *The Lazy Bear* (1973) were used. These were the same storybooks Eller et al. (1988) had used so that a comparison of the results of the two studies could be made. Likewise, the 20 target words or phrases used to study the incidental acquisition of vocabulary were the same words used in the 1988 study. The ten target words/phrases from *The Owl and the Woodpecker* were: *tapping, screeches, peace/peaceful, swooped, wise and clever, crotchety, crafty, gnaw, struggled, echoed;* for *The Lazy Bear* they were: *woodcutter, sniffed, enjoyed, speed, curious, marvelous, head over heels, shallow, bully,* and *glorious.*

A pretest of story vocabulary was constructed using the above list of target words/phrases. The vocabulary items from the *WPPSI* were alternated with the target words in test administration to insure that the story vocabulary pretest list would not be so uniformly difficult that the children would find the task frustrating. The posttest consisted only of the 20 story vocabulary pretest items.

All 48 subjects, both experimental and control, were individually administered the pretest by a team of seven trained examiners, including the second author of the paper. Examiners pronounced a test word and asked students to tell what it meant. Children were asked to tell the meaning of the words following a free recall format. If no response or an incomplete response was given, examiners asked the children to tell anything else they knew about the word. Subject responses were recorded through examiner notation.

Approximately 1 week after pretest administration, each experimental subject was individually read one of the books by one of three trained, adult readers, including the first author; the order in which the books were read was counterbalanced. When the adult reader completed the reading, subjects were shown a second version of the book, one with the written text covered so that only the illustrations could be used as retelling prompts. The written text was concealed so that the subjects who might have some beginning reading skills would not approach the task differently from those who could not read. The subjects were asked to "read" or "pretend read" the story to the adult, making their story as much as possible like the one that was read to them.

The read aloud events were repeated in exactly the same form and sequence on 2 more days of that week. In most cases the three reading sessions took place on Monday, Wednesday, and Friday. The following week, the same procedures were followed with three reading sessions for the second book. No attention was drawn to any of the vocabulary in the books, nor was vocabulary discussed with the children. Both the adults' readings and the children's retellings were audio recorded: the retellings were later transcribed into written form for purpose of analysis. Control subjects simply followed the regular kindergarten or first-grade schedule during the course of the experiment.

During the week following the reading of the second book, the story vocabulary posttest of the 20 story words was administered to both the experimental and the control subjects using the same procedures as were employed in the pretest. The same examiner administered the pretest and the posttest to any particular child.

The system for scoring the story vocabulary pretest and posttest was:

0 point—No knowledge of word meaning or incorrect response
1 point—Partial or incomplete knowledge of word meaning
2 points—Target word used in appropriate, meaningful context
3 points—Synonym or definition of target word

All of the pretests and posttests were scored by the second author who, throughout the study, remained blind to the group membership of the subjects. To establish the reliability of the scoring system for the pre- and posttests, both authors independently scored 10 randomly selected pre- and posttests administered to kindergartners and 10 administered to first graders. The rate of agreement for the scoring of each item was over 95%. Discussions were used to resolve differences in scoring, which were never more than a 1-point difference. Given this high rate of agreement, all other tests were scored only by the second author.

The coding system developed by Eller et al. (1988) was used to score the reading reenactment responses. The system consisted of 5 categories:

CATEGORY ONE (NO/FAULTY KNOWLEDGE)—1 point
    target word not used, or nonsynonymous replacement used
CATEGORY TWO (DEVELOPING KNOWLEDGE)—2 points
    target word used inappropriately or with syntactic error
CATEGORY THREE (SYNONYM)—3 points
    synonymous word or phrase used
CATEGORY FOUR (ACCURATE KNOWLEDGE)—4 points
    accurate use of target word
CATEGORY FIVE (GENERALIZED KNOWLEDGE)—5 points
    accurate use of target word in appropriate context and elsewhere in the text

A total of 1,440 instances of word use (24 subjects × 20 target words × 3 readings) were analyzed according to the above system. Each target word received a rating of from 1 to 5 for each child. The total points for each category of word use were calculated.

RESULTS

Findings from Retellings

Table 1 shows the frequencies and percentages of the target words used by the combined kindergarten and first-grade children in the experimental group, according to the five category ratings. The scores from the kindergarten and first-grade experimental

Table 1

Frequencies (and Percentages) of Category Ratings for Target Lexical Items by Reading for Kindergarten and First Grade Combined

Category	Reading One	Two	Three
No/Faulty Knowledge (Cat. 1)	367 (76.46)	315 (65.63)	297 (61.88)
Developing Knowledge (Cat. 2)	1 (.21)	1 (.21)	0 (.00)
Synonym (Cat. 3)	62 (12.92)	60 (12.50)	53 (11.04)
Accurate Knowledge (Cat. 4)	50 (10.42)	96 (20.00)	120 (25.00)
Generalized Knowledge (Cat. 5)	0 (.00)	8 (1.67)	10 (2.08)
Totals	480	480	480

subjects were combined because no significant differences between these two groups were found for the total scores, an unanticipated finding. The number of words in Category 1 (no/faulty knowledge) and Category 3 (synonym) decreased across the three retellings, whereas the number of words in Category 4 (accurate knowledge) and Category 5 (generalized knowledge) increased.

Using the 5-point scoring system, each child was given an individual score for the first retellings of the two books combined, the second retellings combined, and the third retellings combined. Scores per reading could range from a low of 20 to a high of 100. Analysis of variance yielded significant main effects for the retellings: $F(2, 46) = 24.04$, $p < .0001$.

A multiple comparison of means (Tukey's HSD Test) indicated statistically significant differences ($p < .05$) between the first and the second retelling scores and between the first and the third retellings. There was no significant difference, however, between the second and the third retelling (Retelling 1: $M = 31.92$, Retelling 2: $M = 38.33$, Retelling 3: $M = 41.08$).

Table 2 shows means and standard deviations resulting from separate analyses of retelling scores per reading for subjects in kindergarten and first grade and for boys and girls. ANOVA by grade and gender was carried out, with difference scores between the first retelling and the higher of the second or third retellings. No significant main effects were found for the gender of the subject or the grade; however, the difference in retelling scores between kindergartners and first graders approached significance, $p < .065$ (kindergarten: $M = 7.5$, first grade: $M = 13.42$).

Analysis of Story Vocabulary Pre- and Posttests

Table 3 shows the means and standard deviations for pretest, posttest, and gain scores by the grade and gender of subjects. No statistically significant difference was found between the pretest and posttest vocabulary scores with respect to treatment,

Table 2

Means (and Standard Deviations) of Retelling Scores by Grade and Sex

	Retelling 1	Retelling 2	Retelling 3
Kindergarten	29.83 (6.78)	35.33 (11.31)	36.58 (10.3)
First Grade	33.08 (5.73)	41.33 (13.28)	45.58 (11.12)
Boys	32.58 (6.96)	39.83 (13.88)	41.33 (13.15)
Girls	30.33 (5.77)	36.83 (11.24)	40.83 (10.04)
Total Group	31.46 (6.36)	38.33 (12.44)	41.08 (11.45)

grade, or gender of the subject; nor were there any significant interactions. Differences by gender and treatment group, however, approached significance, with girls showing larger gain scores than boys, and with the overall experimental group scoring higher than the control group.

An analysis of covariance, using the *WPPSI* raw scores as a covariate, also did not show statistically significant differences.

DISCUSSION

In general the results support, to a limited extent, the earlier findings of Eller et al. (1988), though the effects of reading aloud on vocabulary growth were not as strong in this study. Although there was a significant increase in subjects' appropriate use of difficult vocabulary from the first to the second oral reenactment of the books, the differences between the second and third reenactment, though in the expected direction, were not significant. One obvious difference between this study and the Eller et al. study was the use in this study of a first-grade population in addition to the kindergarten population. However, the difference in the populations does not seem a reasonable explanation for the difference between the two studies since there were no statistically significant differences between the performance of the first-grade and kindergarten subjects. Overall, our results are not terribly different from those of Eller et al.; all of the scores were in the expected direction.

One unanticipated finding throughout this study was the general lack of significant differences between the performance of the kindergarten and first-grade children, although the difference in retelling scores by grade did approach significance. This lack of differences was not restricted to the effects of the experimental treatment. There were likewise no significant differences in the pretest of the story vocabulary items, nor in the *WPPSI* scores. The latter finding suggests that the kindergarten children referred to us may have been more advanced in language development for their age than were the first graders for their age. In particular, it seems that facility with oral language was not always taken into account in the referral of kindergarten students since the range in subjects' ability to "read" stories varied greatly. Some kindergartners were still at the labelling stage while others supplied full and sophisticated stories.

The second major finding in the study was that there were no significant differ-

Table 3

Means (and Standard Deviations) for Pretest, Posttest, and Gain Scores by Grade and Sex

	Pretest	Posttest	Gain Score[a]
Kindergarten			
Control	17.92 (8.89)	21.08 (12.19)	3.17 (5.25)
Experimental	15.42 (8.18)	22.17 (9.88)	6.75 (5.31)
First Grade			
Control	20.75 (10.70)	25.50 (9.30)	5.58 (4.58)
Experimental	25.00 (8.77)	31.00 (10.51)	6.00 (5.86)
Boys			
Control	20.50 (9.88)	23.42 (8.85)	4.83 (4.49)
Experimental	23.42 (10.99)	27.08 (13.07)	3.67 (5.38)
Girls			
Control	17.17 (9.49)	20.25 (12.14)	3.92 (5.58)
Experimental	17.00 (7.12)	26.08 (8.90)	9.08 (4.23)
Total Group			
Control	19.33 (9.73)	23.29 (10.84)	4.38 (4.38)
Experimental	20.21 (9.63)	26.58 (10.95)	6.38 (5.48)

[a] Gain scores were determined by finding the difference between pre- and posttest scores for each subject. In some cases the mean gain score may be larger than the difference between the means of the pre- and posttest scores.

ences by treatment between the pre- and posttest measures of subjects' ability to provide verbal definitions for the 20 difficult words taken from the texts that were read aloud. The research by Elley (1989) provided some basis for predicting significant differences in such a measure, but there were some important differences between this and Elley's study. Elley used a multiple-choice test, whereas we asked subjects to *produce* a verbal definition—a much more demanding task. It may very well be that there is a continuum of difficulty of tasks which assess knowledge of vocabulary, so that being able to use the word in a contextually appropriate way in the retelling of a story, or choosing a picture from four choices to match a word spoken by an examiner may require less depth of vocabulary knowledge or perhaps less expressive language skills than producing a verbal definition. Although we have not yet analyzed, except for the targeted vocabulary, the full content of the reading reenactment protocols, we did note several in which the children were able to use some words in a contextually appropriate way in the reading reenactment, but then failed to offer even an attempt at defining the word when asked to do so on the posttest.

The present study was different from the Elley study also in that our subjects were younger. It may be that the impact of reading aloud is greater for older children. In addition, the books used in this study were different from those used by Elley (1989), and Elley did show substantial text specific effects on vocabulary acquisition.

The results of the present study are encouraging in that they partially replicate the results obtained by Eller et al. (1988) which suggest that reading aloud to children has an important, positive effect on vocabulary growth. However, the study also points to a number of implications for future research dealing with the influence of reading aloud to young children. First, it is unfortunate that more is not known about the relationship of different approaches to assessing a child's knowledge of a word. There is an outstanding need for research in this area.

Second, the procedure of reading books aloud to individual children was very time consuming. The recent work of Elley (1989) suggests that reading to groups of children has a very significant effect on vocabulary growth; the differential effects on vocabulary development, if any, of reading aloud to individual children as compared to reading aloud to groups need to be studied.

Elley (1989) has begun some very important analyses of the types of vocabulary items that children are likely to learn from read aloud events and has also found substantial text specific effects on vocabulary acquisition. This work, which eventually might provide teachers some useful guidelines for selecting read aloud books, also needs to be extended.

Finally, the studies by Eller et al. (1988), Elley (1989), and the present study all used three readings of the same book assessing vocabulary growth. Certainly there is no good research basis for concluding that three rereadings is the optimal number. Although Eller et al. did find significant improvement in the use of the targeted vocabulary from the second to the third reading reenactment, we did not. Based on inspection of the reading reenactment protocols from our study, it appears for some children, most likely those with more restricted language skills, having the text read aloud three times seemed very beneficial. In addition to increased appropriate use of the targeted words, many of these children produced increasingly longer, more elaborate reading reenactments protocols. However, some children, most likely those with very good language skills, seemed bored by the third reading and retelling. The reading reenactment protocols of such children actually showed a reduction in length and detail with subsequent retellings. The epitome of this tendency was exemplified by one kindergarten child, who when told that he would be read *The Owl and the Woodpecker* for the third time, asked if it were the only book that we had, and then volunteered to bring some of his own books for us to read to him.

Becoming a Nation of Readers (Anderson, Hiebert, Scott, & Wilkerson, 1985) concluded: "The single most important activity of building the knowledge required for eventual success in reading is reading aloud to children" (p. 23). The studies reviewed in this paper provide added justification for that statement and suggest that an important way in which reading aloud to children contributes to their success is by broadening the language base on which successful reading exists.

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THE INFLUENCE OF PHONICS INSTRUCTION ON SPELLING PROGRESS[1]

Laurie Nelson
National College of Education

In recent years, linguists, educational researchers, and classroom teachers have come to embrace a theory of early spelling development, first advanced by Charles Read in 1971, in which children's spelling is initially dominated by their phonetic intuitions, and only later gives way to more acquired, conventional forms. Developmental spelling theory underwent subsequent refinement by Edmund Henderson and his colleagues at the University of Virginia (Beers & Henderson, 1977; Gentry, 1977; Henderson & Beers, 1980; Zutell, 1980); actual "stages" of development were posited and field tested in varied settings. Based on these theoretical refinements, most children pass through a succession of reasonably clear and identifiable stages en route to becoming proficient spellers. Although evidence of these stages has been collected time and again, research is still lacking that tests the durability of this sequence in sharply defined instructional settings. The Read/Henderson findings are undoubtedly important, explaining how most children acquire English spelling; but do all children necessarily learn to spell in the specified sequence? And if not, what deviations occur?

A precedent exists for suggesting instruction can influence how children treat and store words. Barr (1972, 1974–1975), DeLawter (1970), Elder (1971), and others have demonstrated the differential contributions of phonics and/or word-based instruction to children's word learning in reading. There are logical grounds therefore for suspecting instructional influence on spelling development. In this paper, the possibility of instructional influence on the Read/Henderson developmental spelling sequence is systematically explored.

Developmental Spelling Stages

According to Henderson (1981), children show the first sound in a word in their earliest systematic spelling attempts. Soon thereafter, the final sound is represented. *Feet* spelled F or FT is common at this beginning stage (sometimes called the *semiphonetic* stage). Next, young children enter a *phonetic* stage of spelling in which the beginning, middle, and end of a word are represented (Henderson, 1980; Read, 1971). Henderson (1980) suggests that children spelling in the phonetic stage use one letter per sound. Consonant boundaries (the first and last sounds in words) are recorded

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[1] I would like to acknowledge the insights of Rebecca Barr, Darrell Morris, and Jerry Zutell in preparation of this manuscript.

fairly reliably because the sounds we hear in most consonants can be traced to their correct *letter-names*. Long vowels, because they "say" their own *letter-name*, are also generally rendered correct (FET for *feet*; RIS for *rice*). Having assigned the alphabet letters *a, e, i, o,* and *u* the job of recording long vowel sounds, however, children at this stage could be at a loss when they go to record short vowel sounds.

Read (1971) found that children actually seem not to experience any confusion; instead they naturally record the short vowel sounds with the phonetically nearest long-vowel neighbor until such time as the *correct* short vowel pairings are learned. Thus, *dress* is spelled JAS or JRAS, *rich* is spelled REJ or REH, and *junk* might be spelled JOK (the nearest long-vowel neighbor for short *e* is the alphabet letter-name A; the nearest long-vowel neighbor for short *i* is the letter-name E; and the nearest long-vowel neighbor for short *u* is the letter-name O [Read, 1971]).

The third stage and final one of interest in this paper, the *transitional* stage, also represents an advance in how children are thinking about words. Key here is the child's movement away from a one letter per sound spelling strategy. The child begins to grasp the pattern principle in English spelling (Henderson, 1980; Henderson & Templeton, 1986). Consequently, long vowels are marked, if incorrectly at times: the phonetic rendering of *feet* [FET] may now go to FETE; *rice*, once RIS may now be RIES. At this stage, according to Henderson, the correct short vowel pairings are learned (possibly as a consequence of reading experience/instruction [Henderson, 1985]), and JRAS improves to DRES.

Influence of Instruction on Spelling

Developmental spelling theory suggests that children in the *phonetic* spelling stage may rely on knowledge of long vowel letter names to spell short vowels. Yet, conventional (correct) short vowels are often taught before long vowels in systematic phonics programs. Such instruction supports the development of understanding in a sequence inconsistent with the proposed developmental scheme. Therefore the inclusion of a phonics-instructed classroom could make a useful test case in a study of instruction's influence on spelling.

Regardless of instructional type, it was thought that it would not be until the *phonetic* stage that children's spellings would be likely to reveal instructional influence, since consonants make a limited number of sounds compared with vowels.

METHOD

The spelling data used in this study were collected as part of a larger project contrasting possible instructional influence on several early reading phenomena. These spellings were drawn from a working class, semi-rural, phonics-instructed kindergarten, and a low SES, word-based instructed first grade. The spelling lists were given in one-to-one sessions with individual children, four times over the year (September, December, February, and May). The list itself was adapted from Morris (1981; see Table 1).

Table 1

Typical Spellings and Category Placement

Target	Semi-Phonetic	Phonetic	Transitional
FEET	FT FE	FET FIT*	FETE
MAIL	ML MA	MAL MEL*	MALE
DRESS	JS	JAS JES*	DRES
		JRAS JRES*	
		GAS GES*	
		GRAS GRES*	
		DAS DES*	
		DRAS	
STICK	SK STC	SEK SIK*	STIK
	CK	CEK CIK*	
		STEK SIC*	
		CTEK	
LAMP	LP	LAP	
RICE	RS RC	RIS ROS*	RIES
	RES	RIC	RISE
BEG	BG BOG	BAG	
RICH	RJ	REJ RIJ*	
		REG RIG*	
		REH RIH*	
JUNK	JC JEK JK	JOC JUC*	JUNC
		JOK JUK*	GUNK
		GOC GUC*	
		GOK GUK*	
COMB	CM KM C	COM CUM*	COME
		KOM KUM*	

*Indicates anomalous vowel treatments in words otherwise phonetically spelled.

Anomalies in Spelling

Three patterns were noted in the phonics kindergarten during data collection, raising the possibility that the developmental spelling sequence outlined by Read and Henderson does not hold for all instructional settings. First, correct short vowels (a *transitional* stage feature), co-occurred with features Read and Henderson argued were benchmarks of the *phonetic* stage. Thus *dress* was spelled JES, and *rich* was spelled RIH. (At the phonetic stage the child tends to use a single letter to represent a consonant blend or digraph whose actual spelling must probably be learned through reading.)

Second, some of the more able youngsters handled vowel spellings in unusual ways. One child who could *orally* segment each spelling word accurately, could not decide how to record the long or short vowel sounds. She recorded the beginning and ending consonant and left a space for the vowel: JR_S for *dress*, ST_G for *stick*, R_S for *rice*, and so forth. Another child, at a point in the year when all five short vowels had been instructed, "used up" the five vowel letters for the short vowel words on the spelling test. She spelled *feet* correctly and rapidly, then paused before attempting two other long vowel words on the list. Finally she spelled *rice:* RIIS and *comb*: COOM. These spellings suggest she had to hurriedly come up with a way to represent long vowel sounds. When asked why she had doubled the vowel in these words she said she had used *feet* to figure it out.

Third, several children spelled some long vowels with the same incorrect letter, time after time. *Mail*, instead of being spelled MAL, was spelled MEL; *feet* was spelled FIT. These children seemed to be using "reverse substitutions," going to the nearest-short-vowel-neighbor to represent the long vowel sound, whereas Read had discovered most young spellers going to the nearest-long-vowel-neighbor to represent the short vowel sound. Read (1971) and Beers and Henderson (1977), had also observed this reverse substitution phenomenon on a limited basis. Table 1 represents both the early developmental spelling stages and the anomalies seen in the phonics-instructed kindergarten for the set of one-syllable words used in this study.

Analysis of Spellings from Phonetic Stage

To investigate the spelling anomalies described above more systematically, some ground rules were established. First, only those spelling protocols that adhered to the phonetic stage criteria as originally put forth by Henderson (Henderson, 1980; Henderson, 1981) were analyzed, with the exception that words were coded as phonetic even if the short vowel were correct. For example, JES was coded as a phonetic stage spelling since the consonantal treatment fit Henderson's "spelling by sound" criterion and only the vowel was conventionally rendered. Unmarked long vowels as in MAL and FET were easy to code phonetic—as every letter fit Henderson's criteria. Even nearest-short-vowel substitution spellings of long vowel words such as MEL and FIT could be coded phonetic because no vowel marker was present. (Vowel markers are a hallmark of the more advanced *transitional* stage.)

Second, protocols were included only if 5 or more of the 10 words fit the phonetic criteria. Further, if only 5 words fit the criteria, the remaining 5 words had to be split between semi-phonetic and transitional stage spellings. These conditions met, the *entire list* was included in the analysis. A provision was made for including words from the phonics-instructed class. Not until each specific short vowel had been instructed were words containing those short vowels included in the analysis. This same provision was not made in the word-based class, where long and short vowel instruction was less systematic.

Third, in looking for 5 or more phonetically spelled words on a list, only words with both boundary consonants and the vowel (CVC-patterns) were considered. *Feet* spelled FE was insufficient evidence to code a spelling as phonetic stage; evidence also had to exist showing that the child could hear the ending consonant based on his or her spellings of other list words. Once 5 words on a list were tagged phonetic, however, as a sixth word *feet* spelled FE was included in the analysis, providing additional data to analyze for the state of the child's vowel knowledge.

Of the 74 lists analyzed from both classes, 19 were included on the basis of 5 words fitting the criteria, and the other 55 lists were included because between 6 and 10 words fit the criteria. For both classes, 62 of the 74 lists analyzed were from Times

3 (February) and 4 (May); only then were most of the children in the phonetic spelling stage. Having determined criteria for selecting relevant lists, the data from the two classes were kept separate for subsequent analyses, to preserve the possibility of discerning different instructional influences.

The analysis was straightforward. Each word was noted and tallied if it contained what could be called a developmentally precocious treatment of the vowel. For example, *dress* spelled JES or JRES was tallied as a precociously correct short vowel spelling because it appeared at the phonetic stage. *Mail* spelled MEL was noted as an example of a nearest-short-vowel-neighbor substitution for the long vowel *a*. The rationale for this was based on the observation by Read (1971) that children use similarities in articulation to represent short vowel spellings. In this case, the same intuition is in effect but followed in the opposite direction. It is hard otherwise to explain why long *a* would be spelled with an *E* rather than an *A*. Referring back to Table 1, the asterisked spellings exemplify precocious, correct short vowel spellings in otherwise phonetically rendered words and intuitively spelled nearest-SHORT-vowel-neighbor renderings of long vowel sounds. These spellings were tallied as influenced by instruction.

RESULTS

Figure 1 depicts the incidence of instructional influence in both classes. There is a clear trend towards correct spelling of short vowels in the phonics class when compared with the word-based class. Based on 209 words analyzed, phonics-instructed children correctly spelled short vowels often (78%), whereas otherwise the criteria for list inclusion indicated that they were in the phonetic spelling stage. This contrasts with children in the word-based class who, based on 160 words analyzed, correctly spelled the short vowel 31% of the time while in the phonetic stage. A z-

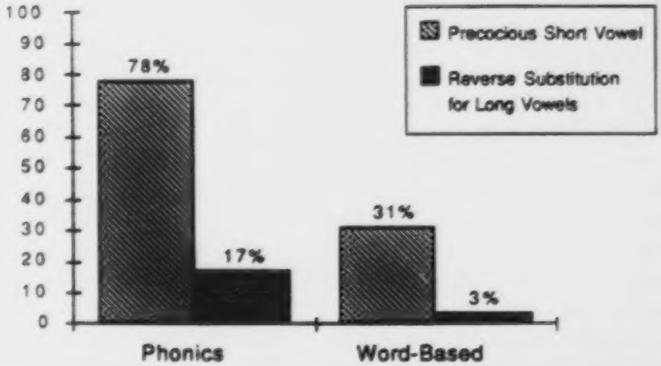

Figure 1. The incidence of instructional influence on long and short vowel spellings by class.

test for comparing proportions from independent samples showed that the two percentages were significantly different at the $p<.001$ level (Ferguson, 1976).

At the same time, phonics-instructed children substituted the nearest-short-vowel-neighbor for long vowels 17% of all 170 words analyzed, whereas word-based instructed children made this substitution only 3% of the time on 128 words analyzed. A z-test comparing phonics versus word-based instructed children's use of nearest-short-vowel-substitutions again showed the difference to be significant at the $p<.001$ level. The instructional influence on short vowel words was significantly greater than on long vowel words ($p<.001$) for each class.

DISCUSSION

The results of this study indicate a trend towards accelerated correct short vowel spelling with consequences for long vowel spellings on the part of phonics-instructed kindergartners. Given an instructional program in which the short vowel sounds are intensively rehearsed (about 2 weeks of direct instruction per short vowel) and constantly reviewed as new consonant sounds are introduced, it makes sense that a deviation in a traditional developmental spelling sequence might occur. This is particularly so given that the developmental sequence was first identified in a preschool setting where no strong print-oriented instruction occurred (Read, 1971) and refined in a more eclectic first grade (Beers & Henderson, 1977).

The significant results in the phonics class raise two issues. First, what was proposed as a "natural" developmental sequence (Henderson, 1980) may be determined in part by how children typically learn to read, namely via word-based methods. Given intensive phonics-based methods, the developmental sequence may be altered. One implication of this finding is that in future spelling research instruction needs to be documented in order to gauge its influence on spelling development.

Second, at the same time that some specific measureable instructional influence pertaining to vowels was documented in this study, I suggest that the basic tenets of Read and Henderson's work seem to hold in general. Read (1971) and Henderson (1980) each describe the phonetic spelling stage as one in which children spell one letter per sound. The results of this study confirm this notion. Further, a portion of the evidence suggested that kindergarten children in this study may have based their short vowel substitutions for long vowel *sounds* on articulatory gestures. This is similar to Read's (1971) finding concerning the spelling of *short* vowel sounds. In this study, the children turned to the instructed *short* vowels (instead of to the known *long* vowel names), perhaps because short vowel instruction had moved them away from letter-name intuitions. Either decision pivots on an articulatory base. Thus, although this study finds support for the influence of instruction on spelling, it also lends support to the existence of a developmental spelling progression.

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BEING REALLY, REALLY CERTAIN YOU KNOW THE MAIN IDEA DOESN'T MEAN YOU DO[1]

Michael Pressley
University of Maryland

Elizabeth Ghatala
University of Houston

Jennifer Pirie and Vera E. Woloshyn
University of Western Ontario

An important assumption in most models of skilled reading is that readers monitor their comprehension of text (e.g., Baker & Brown, 1984), that they are aware of when content is understood and when understanding is less than complete. Such awareness is presumed to play a critical role in regulating comprehension processes. Thus, if a reader believes prose is being encoded and interpreted as intended by an author, there is no reason to modify processing of text. If text is being read quickly, beginning at the first word of every paragraph and proceeding to the end of each paragraph, it is likely that rapid beginning-to-ending reading will continue. Alternatively, feelings of miscomprehension can direct rereading of material already covered or alter processing of subsequent content (e.g., cause the reader to read more slowly and carefully). In short, comprehension monitoring has been conceptualized as a critical executive process in skilled reading, regulating other processes that affect comprehension.

Much of the early work on comprehension monitoring was done within the error detection paradigm. Students read text containing inconsistencies or errors (e.g., two statements in a story about fish, one claiming they live where there is no light and the other that fish select their food by color). If readers noticed such problems, the argument was that they were monitoring their comprehension (e.g., Markman, 1977, 1979)—they were detecting that their understanding of one part of a text conflicted with what they understood another part of it to mean. For the example, if the subject coded that fish lived in a completely dark environment, the statement about selecting food on the basis of color should be surprising and result in a report of text inconsistency. Unfortunately, there were alternative interpretations of failures to report errors in text, ones making obvious the inadequacy of the error detection approach as an index of comprehension monitoring. Three of the possibilities mentioned by Winograd and Johnston (1982) were that failures to report errors could be due to lack of prior knowledge, reflect readers' general belief that printed texts do not contain errors, or result from rationalizations made by readers to explain away inconsistencies.

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The interpretive difficulties with error detection stimulated the development of alternative methods for measuring comprehension monitoring. One technique developed in our laboratories (Pressley, Ghatala, Woloshyn, & Pirie, in press) has been to ask people main idea questions about text they have just completed reading (e.g., What is the author's purpose in this passage? What would be a good title for the passage?) and to elicit ratings of confidence in their responses. If a reader is monitoring comprehension, then confidence should be high when responses to main idea questions are adequate and low when responses are inadequate. Our most important finding to date, however, is that adult readers usually are moderately confident about the correctness of their answers to main idea questions, regardless of the adequacy of their responses (Pressley et al., in press, Experiment 2). Most striking, they are overconfident about poor answers, causing them to bypass opportunities to restudy text (Pressley et al., in press, Experiment 1). In short, adults do not seem to monitor well their comprehension of main points in text, a type of monitoring failure that can undermine executive actions (e.g., deciding to reread) that potentially could improve understanding of text.

In the study reported here, we reexamined comprehension monitoring using the main idea-question paradigm. The particular problem studied here was whether comprehension monitoring (and thus, responses to main idea questions) might be more adequate if students were induced to use an exceptionally stringent criterion, one more exacting than their usual standard. Thus, students in a *high-certainty* condition read stories accompanied by main idea questions. They were instructed to continue reading and processing the passage and its accompanying question until they could respond to the question with a high degree of confidence. In contrast, *one-reading* subjects were asked simply to read the passage one time, to provide an answer to the passage question, and to rate the certainty of their answer. Based on Pressley et al. (in press, Experiment 2), the expectation was that one-reading subjects would rate both their correct and incorrect answers approximately equally and about 5 on a 7-point scale (i.e., confident, although not extremely confident). That is, their confidence following one reading was expected to be well below the 7-point ceiling of the scale, and thus, there would be room for the high-certainty instruction to increase confidence.

One well established finding in the error detection paradigm is that instructions to shift criteria affect performance; in general, any information provided to subjects about what constitutes an error increases accuracy in reporting errors consistent with the criteria specified in the instructions (e.g., Baker, 1985; Elliott-Faust & Pressley, 1986; Markman & Gorin, 1981). Thus, we surmised that asking subjects to use a different criterion than the one they normally would adopt (viz., one higher than their usual one) might increase critical evaluation of their first responses. If so, they might review text additionally to determine if their first attempt to summarize the text theme really produced an answer veridical with the meaning in the prose. If this manipulation was successful in increasing the quality of answers provided to main idea questions, it would suggest a simple intervention for improving monitoring of main idea comprehension. Readers could be encouraged to adopt especially stringent criteria for deciding they have understood the most important idea in a passage.

METHOD

Subjects

Forty undergraduates (22 females, 18 males; mean age = 19.5 yrs; age range = 18 to 25 yrs) who were enrolled in a first-year university course served as subjects in the experiment. Subjects were randomly assigned either to the high-certainty condition or the one-reading condition.

Materials

Subjects read 10 passages (a different random order for each participant), each between 200 and 500 words in length. These were taken from SAT verbal subtests (e.g., College Entrance Examination Board, 1988) and covered literary, scientific, and social scientific topics. The following example is typical of the length and difficulty of these readings:

> As soon as cable service was restored after the earthquake, Baron Okura replied to architect Frank Lloyd Wright's inquiry with a message of congratulation:
>
> HOTEL STANDS UNDAMAGED AS MONUMENT OF YOUR GENIUS. HUNDREDS OF HOMELESS PROVIDED FOR BY PERFECTLY MAINTAINED SERVICE. CONGRATULATIONS, OKURA.
>
> Never one to display undue reticence in such matters, Wright speedily convened a press conference at which he said nothing to dissuade reporters from drawing the inference that the Imperial Hotel was the only building in Tokyo that had remained standing through the disaster. In fact, however, hundreds of other solid masonry buildings in both Tokyo and Yokohama also withstood the quake—most notably those of British architect Josiah Condor, whose numerous structures suffered considerably less damage than Wright's. Nonetheless, the Imperial Hotel's thoroughly undeserved fame as the only building that had stood up through the great Tokyo quake was to prove far more unshakable than the edifice itself; and Wright's renown as the man who had designed and built it flourished accordingly. While by no means wholly responsible for the architectural revolution that was to revitalize the world's cities during the next four decades, the worldwide repute of Wright's Imperial Hotel was to facilitate and hasten its progress. By the time this famous edifice was demolished in 1967, the great earthquake had been instrumental in altering not only the appearance of Tokyo but also that of many of the other great cities in the world (College Entrance Examination Board, 1988, p. 55).

Each passage was accompanied by a short-answer question tapping the overall theme of the passage. Subjects were asked either the main idea of the passage, its primary purpose, what the author principally wanted to discuss, or for a title summarizing the passage content. Thus, for the example passage subjects were asked to complete the sentence, "The primary purpose of the passage is to . . . ."

After completing the 10 passages and questions accompanying them, the subjects took a complete 40-item SAT verbal section. This provided an estimate of individual differences in verbal competence.

Procedure

Before a passage was presented, the subject read the question accompanying it. High-certainty subjects then read the passage under an instruction to continue reading until they could provide an answer to the question with a very high degree of certainty (i.e., they could give an answer they were "*very, very* sure of." In contrast, one-reading subjects were presented the question before reading and were told to read it from beginning to end one time only and to generate an answer based on the single reading. After producing an answer, subjects in both conditions rated their confidence of correctness on a 1 (absolutely sure answer is incorrect) to 7 (absolutely certain answer is correct) scale, with the midpoint of 4 correponding to "50/50 chance the answer is correct." Following the rating, the subject proceeded to the next passage.

RESULTS AND DISCUSSION

Verbal Ability

High-certainty subjects averaged 24.10 items correct ($SD = 4.42$) out of 40 on the SAT verbal section; the corresponding figure for one-reading subjects was 23.05 ($SD = 4.47$). These means did not differ significantly, $t(38) = 0.75$, $p > .50$, suggesting approximately equal verbal ability in the two conditions. This was as expected since there was random assignment of participants to the two conditions; that it was so, however, makes less likely that other significant differences between conditions that occurred could be explained away as artifacts of differences in ability between the two conditions.

Reading Time

High-certainty subjects spent more time reading the passages than one-reading participants; the total reading time was 27.25 mins. ($SD = 12.88$ mins.) in the high-certainty condition versus 18.83 mins. ($SD = 2.72$ mins.) in the one-reading condition, $t(38) = 3.03$, $p < .01$ (Kirk, 1982, for this and all subsequent statistical references).

Performance on the Main Idea Questions

All answers that addressed the question and were consistent with the text were considered correct, with two raters achieving 95% agreement; disagreements were resolved by discussion. For instance, for the question about the purpose of the example passage, any answer referring to how the earthquake was responsible for shifting world architecture in the ensuing years was accepted as correct.

The extra time in the high certainty condition did not translate into significantly better performance on the main idea questions. High-certainty subjects averaged 5.70 correct out of 10 compared to 5.00 in the one-reading condition, $t(38) = 1.02$, $p > .90 (MS_E = 4.689)$. That is, even the students instructed to use a high criterion provided errant responses more than 40% of the time. The proportions of subjects answering a question correctly did not differ significantly for 9 of the 10 passages, greatest $X^2(1) = 1.62$, $p > .05$ for these nine passage questions. For one passage, more high-certainty subjects (11 of 20) responded appropriately to the question than one-reading participants (2 of 20), $X^2(1) = 9.23$, $p < .01$.

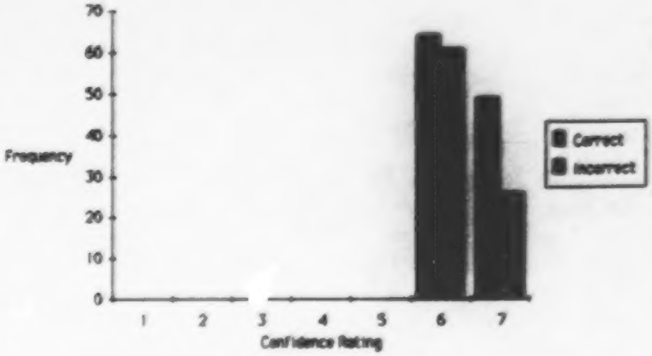
Certainty Ratings

Despite objective performance far below ceiling, high-certainty subjects were very certain of their answers, both when they were correct and when they were incorrect. The respective mean ratings were 6.43 ($SD = 0.22$) and 6.24 ($SD = 0.19$) out of 7. In fact, as is obvious in Figure 1a, no rating for any item by any high-certainty subject was lower than 6. The mean ratings of 5.09 ($SD = 0.82$) and 4.43 (0.78) for correct and incorrect items respectively in the one-reading condition were lower than the corresponding means in the high-certainty condition, smaller $t(38) = 7.06$, $p < .001$. Although the confidence ratings in the one-reading condition averaged on the high end of the scale, they spanned its entire range, both for correct and incorrect responses (see Figure 1b). In both conditions, inspection of the distributions of ratings suggested slightly greater confidence in correct than in incorrect answers. In fact, the mean confidence ratings for correctly answered items were significantly greater than the mean ratings for incorrect items in both conditions, smaller $t(19) = 3.03$, $p < .01$.

One easily replicated finding in the error detection literature is a relationship between reading ability and error detection (Baker & Brown, 1984). Good readers are more likely than poor readers to notice when text contains anomalies and inconsistencies. A parallel relationship was not obtained here. Correlations between verbal SAT performance and awareness of when main idea questions had been answered correctly versus incorrectly (defined as the difference between each subject's confidence ratings for correct versus incorrect items) were low in both conditions, larger $|r| = .20$, $p > .20$. Moreover, there were only nonsignificant correlations between verbal ability and confidence ratings for correct items, larger $|r| = .29$, $p > .20$, and between verbal ability and confidence ratings for incorrect items, larger $|r| = .15$, $p > .50$. These failures to find significant correlations between general ability and awareness of performance are consistent with corresponding failures in Pressley et al. (in press).

SUMMARY AND INTERPRETATION

Not getting the main idea of a passage is bad enough. For a reader not to know that he or she did not get it is even worse. These two deficiencies sum to overconfidence, with this occurring for the full range of reading abilities in the university sample studied here. Asking people to be really sure they answered a main idea question had two negative effects: It slowed responding to the main idea question (i.e., it increased effort expended) and increased confidence in incorrect interpretations of the main point. This pattern is similar to one we obtained previously on a learning task in which college students studied two sets of sentences that differed in memorabil-


(a) High-Certainty Condition

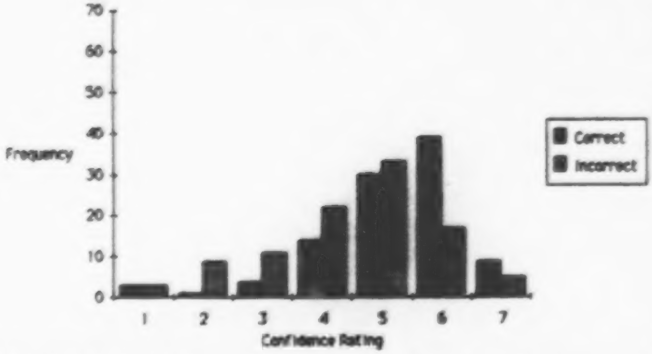

(b) One-Reading Condition

Figure 1. Distributions of certainty ratings as a function of correctness of response for the (a) high-certainty and (b) one-reading conditions.

ity (Hunter-Blanks, Ghatala, Levin, & Pressley, 1988). Subjects detected the memorability difference between sentence sets during study, reported expending more effort on the difficult sentences than on the easy sentences and predicted they would have equally good or better recall of the difficult compared to the easy sentences. In fact, however, on a subsequent test over the sentences, students recalled many more of the easy than the difficult sentences.

In both the Hunter-Blanks et al. (1988) and the present study, it is as if subjects can monitor the effort expended on the task but not the memorial or comprehension consequences of that effort. Students in the Hunter-Blanks et al. study did lower their assessment of how well they had learned the difficult sentences after they experienced a test over the sentences, however. In contrast, subjects in the present study maintained high confidence that they had comprehended the main idea of the passages even after answering test-like questions

How can this latter finding be explained? Most of the incorrect answers contained elements of the passage, embellished with additional meaning by the readers. For instance, the following were incorrect statements of the primary purpose of the example passage, with all of these statements rated as likely to be correct by students who provided them (i.e., a confidence rating of 6 or 7 was provided for each one): "The historical analysis of how the architecture in Tokyo was established." "Point out the power of the press." "Say that quality can stand the test of time." "Why Wright was given so much attention for the building he built." The readers providing these responses constructed interpretations of the text, ones capturing some theme in the passage, although not the most important one. Thus, the example passage was revealing about how some of the architecture in Tokyo came about, it attested to the power of the press in enhancing a person's reputation, it told how Wright sent forth the message that his workmanship would stand challenging tests, and it specified how Wright gained a lot of attention for a building he designed. Nor are these responses atypical of incorrect answers; most of the incorrect responses consisted of themes developed in the passages. One hypothesis suggested by these incorrect answers is that so long as a reader can construct an answer to a main idea question, one that can be defended in light of some of the passage content, he or she is at risk for believing the interpretation maps well on to the main message in text.

In presenting this hypothesis, we recognize that the texts used in this investigation and in our previous studies may be special cases. In all of our work on this problem to date, the passages have been challenging and inconsiderate (Armbruster, 1984). Of course, the main ideas of more considerate texts should be more obvious and thus, more likely to be comprehended. So might the main ideas of texts that are of greater interest to readers or more consistent with their expertise. The more critical question, however, from the perspective of this investigation, is whether readers are aware of when they miss the point of such texts. A high priority should be to determine whether the comprehension monitoring problem reported here is a more general one.

Even if it is not, however, the deficiency documented here is probably important, for readers are often confronted with inconsiderate texts covering content not related much to what they already know (Armbruster, 1984). Students often are required to extract the main points from difficult texts. If the only instruction provided to them is to keep working until they are very sure the main idea has been identified, that bit of instruction may do more harm than good by slowing reading, yet increasing confidence in incorrect responses. Criterion shifting alone is probably not enough to improve comprehension monitoring of inconsiderate texts.

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DIFFERENCES IN STORY RETELLING BEHAVIORS AND THEIR RELATION TO READING COMPREHENSION IN SECOND GRADERS

June E. Barnhart
Northern Illinois University

Important insights into ways in which literacy is learned and used in everyday activities have come from researchers in emergent literacy. These investigators have focused on the speech and writing of preschool children and include studies that examine young children's developing awareness of oral/written language differences (e.g., Clay, 1979; Holdaway, 1979; Purcell-Gates, 1988; Sulzby, 1986), as well as features of particular forms of discourse, including sense of story (e.g., Applebee, 1977). Researchers in emergent literacy consistently report observations of 4- and 5-year-olds who are not yet reading and writing conventionally, yet display knowledge of the features of written language (e.g., Barnhart, 1986, 1988; Barnhart & Sulzby, 1984; Clay, 1975; Cook-Gumperz & Gumperz, 1981; Ferreiro & Teberosky, 1982; Sulzby, 1985a).

In the process of becoming literate, children encounter experiences with everyday, contextualized writing enabling them to make inferences about functions of writing, as well as relationships between visual symbols and speech sounds (Cochran-Smith, 1984; Harste, Woodward, & Burke, 1984). They also gain experience with another kind of written language where meanings are independent of the situation and environment in which they occur. Gradually, they come to understand, through decontextualized writing, that meaning is made explicit within the resources of language itself, through syntactic and lexical features, as well as the conventions of various forms of discourse.

For example, when young children take part in particular forms of discourse, such as repeated encounters with a favorite nursery rhyme or storybook, they are able to abstract a conceptual perspective that steers their expectations and interpretations of similar forms in the future. For stories, they develop schemes, or a "sense of story." According to Applebee (1977), sense of story begins by 2½ years of age or earlier, and appears to be well developed when children enter school (Mandler & Johnson, 1977; Stein & Glenn, 1979).

The child's sense of story differentially affects the reception and production of story. Research with beginning readers suggests that a well-developed set of semantic and syntactic expectations play a crucial role in successful reading. For example, research by Brown (1977) shows that the extent of a child's sense of story affects comprehension and ease in reading and listening to stories and affects ability to retell and create stories. Children must draw on their linguistic resources at the syntactic and semantic levels, as well as on their knowledge of story structure and convention, to form a text appropriate and meaningful for listeners.

A considerable amount of work has focused on preschool children's growth in oral and written language, as well as story structure. The present study was an extension of this work, and examined the developmental nature of the literacy process beyond the preschool years in a sample of second-grade children who were heterogeneous with regard to level of reading comprehension. The research question which guided the study was: How can we describe story retelling behaviors in second-grade children with diverse reading levels, and what is the relationship between patterns of retelling behaviors and level of reading comprehension?

METHOD

Subjects

The subjects were 24 children in a second-grade classroom from a public school in a northwestern suburb of Chicago. The children came from a lower-middle to middle SES area, and represented a range of ethnic backgrounds. Based on the results of the *Gates-MacGinitie Reading Tests*, Level B, Form 1 (Gates & MacGinitie, 1978) administered in October, the classroom teacher used Grade Equivalent Scores in Reading Comprehension to form three groups for reading instructional purposes: (a) Above Grade Group (AGG), (b) Grade Level Group (GLG), and (c) Below Grade Group (BGG). There were 6 children in the AGG (5 girls, 1 boy), 9 children in the GLG (2 girls, 7 boys), and 9 children in the BGG (3 girls, 6 boys). The mean Grade Equivalent Reading Comprehension scores for the AGG, GLG, and BGG were 3.66 (range = 3.0–4.5), 1.78 (range = 1.7–2.0), and 1.06 (range = kindergarten–1.4), respectively. An analysis of variance showed statistically significant differences among groups in the Comprehension raw scores ($F(1, 22) = 98.59$, $p < .0001$). Post hoc t-tests showed all three paired comparisons to be statistically significant ($p < .0001$). The mean age for subjects was 7 years, 8 months (range = 6,11 to 9,1) in September.

Materials and Procedure

Over a 4-week period, the children listened to their teacher read four unfamiliar folktales in a group setting (one reading of each story per week); the fourth story served as the stimulus story. The folktales were chosen from a collection titled, *The Big Book of Classic Fairy Stories* (Craik, 1987), and included the following, read in this order: (a) "The Frog-Prince," (b) "The Wolf and the Seven Young Goslings," (c) "The Prince With the Nose," and (d) "The Six Swans." Using techniques described in King (1989), King and Rentel (1982), and King, Rentel, Pappas, Pettigrew, and Zutell (1981), each child participated in an individual retelling interview session which was tape recorded. Immediately following the teacher's reading of the stimulus story, each child was asked to retell the story to a "naive" listener. At the interview site, the examiner said to each child: "Mrs. (teacher's name) just read you a story, but I wasn't there to hear it. I want you to tell me the whole story from beginning to end." To confirm the selection of the stimulus story as an unfamiliar folktale, at the end of each interview subjects were each asked if they had ever heard the stimulus story before. None of the children responded positively to this question.

Analyses

All analyses were based on detailed transcriptions for each child, with length (measured in T-units) and structure of children's retellings independently scored by two trained raters. Initial agreement between raters was 92.1%, with consensus reached through discussion. The stimulus story contained 286 T-units. In a study of 100 folktales, Propp (1968) demonstrated that in traditional folktales there is an invariant sequence of 31 functions (or actions and reactions), although in any given tale some functions might be omitted. There were 16 of these in the stimulus folktale. Using this scheme, the number, type, and order of functions in children's retellings were analyzed in the present study.

RESULTS

Across all subjects, there was considerable variation in length and structure of children's retellings. Further, different patterns were observed among the three groups that paralleled reading comprehension levels.

Length of Retellings

Although the length of retellings across all children ranged from 3 to 98 T-units, there was no overlap among groups. An overall Kruskal-Wallace ANOVA showed statistically significant differences among groups ($H(2)=20.16$, $p<.0001$). Retellings by children in the Above Grade Group were significantly longer ($M=86.5$) than those by children in the Grade Level Group ($M=34.0$), $U(6, 9)=60$, $p<.0008$) and the Below Grade Group ($M=10.6$), $U(6, 9)=48$, $p<.001$). Further, retellings by children in the Grade Level Group were significantly longer than those by children in the Below Grade Group ($U(9, 9)=80$, $p<.0003$).

Structure of Retellings

There were also significant differences among groups in the number of functions ($H(2)=20.16$, $p<.0001$). Retellings by children in the Above Grade Group contained significantly more functions ($M=13.00$) than those of children in the Grade Level Group ($M=6.50$), ($U(6, 9)=60$, $p<.0007$) and the Below Grade Group ($M=3.00$), ($U(6, 9)=48$, $p<.001$). Further, retellings by children in the Grade Level Group contained significantly more functions than those of children in the Below Grade Group ($U(9, 9)=72$, $p<.002$). To illustrate the different patterns among groups, four children have been selected here for descriptive elaboration.

Brandy's retelling is representative of children in the Above Grade Group, and excerpts are presented in Figure 1. All children in this group showed an awareness that their retellings had to follow a certain order. For example, Brandy (who recalled 13 functions) retold the story to the end of the first seven functions, then skipped to

1. The story's called "The Six Swans."
2. Once upon a time a king was hunting in a great forest.
3. He was lost in the forest.
4. And he wanted to get back home. (pause)
5. And there was this witch.
6. And she said, "Do you want to go home?"
7. And the king said, "Yes."
8. "Can't you show me the way through the woods?"...
15. And then the witch took the king to her, to the witch's house...
23. And the wicked queen turned the six boys into swans.
24. But the girl was up in her room so she was safe.
25. And then she went to look for, and then one day, the next day the king went there to see his dear children.
26. He came joyfully to visit his boys and girls.
27. And the girl told the king all about it.
28. And the king took, told the daughter to go back to the palace with him.
29. But she didn't want to go.
30. And the daughter said, "Let me stay here one more night."
31. And so he let her stay. (pause)
32. And then right at night, at night time, at night time the girl left.
32. And when she couldn't stay anymore.
33. She went to look for her brothers.
34. And she was walking through the woods.
35. And she saw this little house.
36. And she went inside...
45. And then she remembered that they were her brothers.
46. And they could only take this, (pause) their feathers off for about (pause) an hour.
47. And the brothers said, "We can only shed our skins for a while."
48. "Then we'll turn back into geese." (pause)...
54. They told her that she could not speak or laugh to anyone.
55. And that she had to, (pause) and that she had to make these six shirts.
56. And the little girl made a firm revol-- a firm resolvul--- she made this promise.
84. And just in time, then, and when the six years were over.
85. Then they came.
86. The six swans were flying over.
87. The girl threw the six shirts on them.
88. Then her heart leaped for joy.
89. But one of the shirts didn't have a left arm.
90. And when that happened, there was one of the brothers who did not have a left arm.
91. But he had a left wing.
92. And the witch got burned, burned to ashes.
93. And that was the end.
94. And they lived, and were very happy forever and ever.

Figure 1. Excerpts from Brandy's retelling of "The Six Swans." (Above Grade Group)

function ten. She stopped, paused, and began again, this time sequencing the appropriate functions that had been omitted, and finally completing her retelling of the entire story in order. Brandy and others in the AGG repeatedly self-corrected while retelling, using frequent pauses to reconstruct the original story.

Retellings of children in the Grade Level Group were shorter, and contained fewer functions than those of children in the Above Grade Group. Figure 2 presents Steve's

1. First there was a (pause) witch (pause).
2. And the witch turned the queen's brothers into geese.
3. And what happened was (pause) she found out one day.
4. Then her father came.
5. And was going there to see the, to see something.
6. And asked, "Where are the brothers?"
7. And then said, "The witch turned them into swans."
8. She went under (pause), sent in the swan's house.
9. Let's see, and she hide, hidded under the bed.
10. And they took off their, um, swans's feathers. (pause)
11. It's called "Six Geese."
12. And they, um, the, um, the swan, the girl came out from under the bed.
12. And recognized (pause) them from there.
13. Because they were going, I mean, because they were her brothers.
14. And the next, and then she, um, the king fell in love with the other girl.
15. And, um, and she burned.
16. And she couldn't talk.
17. If she talked it wouldn't work for them.
18. And the witch burned.
19. She burned into pieces. (pause)
20. And she turned into ashes.
21. And they were all there.
22. They watched.
23. They watched her burn. (pause)
24. That's it.

Figure 2. Steve's retelling of "The Six Swans." (Grade Level Group)

entire retelling, and is representative of those by children in this group. Steve recalled eight functions, and in the appropriate order. He made several self-corrections, as he tried to accurately recreate the events of the original story in a certain sequence. Similar to the AGG, retellings of children in the GLG also contained numerous pauses. Steve whispered, "Let's see," as if he was trying to "sort out" his remembrance of the sequence of the story.

Children in the Below Grade Group recalled few of the functions in the stimulus folktale. In addition, none of these children recalled the functions in the appropriate sequence, and gave no indication of an awareness that their retellings had to follow a certain order. Sandy's retelling is representative of children in this group, and is shown in Figure 3. Her retelling was very brief and contained only 3 functions out of the 16 in the stimulus folktale. There were no self-corrections among these children, with some scattered instances of pauses. The pausing among these children, however, appeared to serve some global role as an aid for their general memory of the stimulus story, rather than as a facilitator for organizing this corpus of functions into a sequence that matched the original story.

The retellings across groups also differed in terms of oral/written language features and sense of story. Brandy's retelling contained oral language that was more like the language of print than Steve's or Sandy's. For example, Brandy used dialog, and embedded it within the frame of the story. Further, she consistently made clear who was speaking. Steve also included some dialog, but he omitted explicit reference to the speaker, requiring the listener to infer each speaker's identity (e.g., "And then said . . ."). Sandy included no dialog in her retelling.

Brandy showed her knowledge of literary style by using some of the "literary

1. It was about, um, a girl.
2. And they turned into ducks. (pause)
3. That's a, um, goose. (pause)
4. Turned into ducks or gooses. (pause)
5. And she had turned all three boys into gooses. (pause)
6. And they told her that she had to make, um, six things.
7. And she turned them back. (pause)
8. That's all it was about.

Figure 3. Sandy's retelling of "The Six Swans." (Below Grade Group)

vocabulary" and "literary syntax" found in the stimulus story. Some of the words and phrases that are typically used in writing appeared in Brandy's retelling (e.g., "He came JOYFULLY to visit his children"; "The king went to see his DEAR children"). Brandy also used some word orders that are more typical of written than oral language (e.g., "Can't you show me the WAY THROUGH THE WOODS?" "Then her HEART LEAPED FOR JOY").

Brandy's retelling was detailed and accurate, and her sense of story was well-developed. Past tense and a formal beginning were evident. She began by telling the listener the title of the story, and moved to a traditional story-opening line, "Once upon a time . . ." following the format in the stimulus story. "Story-like" plot structure was present, causal relationships were generally clear, and there was a distinct sense of an ending. In contrast, Steve and Sandy started out by relating an event in the story. It is not until line 11 that Steve told the listener the title of the story, and Sandy never provided this information. Further, Brandy's retelling was more explicit than Steve's and Sandy's in several ways. She used more specific nouns, verbs, and adjectives to make her retelling clear (e.g., "the WICKED queen"). Her use of reference conventions appropriate to written language can be seen by looking at the self-corrections she made (e.g., "And then the witch took the king to her . . . to the witch's house.").

Although Steve's retelling showed some of the linguistic means needed to produce decontextualized text, overall his text made greater inferential demands on the listener for understanding than Brandy's. He made extensive use of pronouns, but he often omitted the referential nouns. For example, the listener was required to infer that the words "her" meant GIRL, "she" meant QUEEN, and "them" meant BROTHERS. Steve's retelling also made greater inferential demands on the listener by being less explicit than Brandy's. With omitted details and words (e.g., "And was going there to see something"), it was more difficult for the listener to cope with the logic of the story. Sandy used pronouns in her retelling, but uniformly failed to provide the listener with any nouns needed for their interpretation. Her retelling was considerably more contextualized than Steve's, making it very difficult for the listener to understand the text without additional reference.

Although Brandy's retelling showed her ability to assemble her language resources at the semantic and syntactic levels to reconstruct a text as written narrative, Steve's and Sandy's retellings were global, or "summative." The request from the examiner was "Tell me the whole story from beginning to end," but Steve's retelling sounded as if he had interpreted the request to be "Tell me *ABOUT* the whole story

1. It's starting out.
2. And the old lady is making some gooses.
3. Some gooses from the boys.
4. I see her!
5. She's doing it now. (child looks at examiner and waves hands like magicians)
6. How do you make gooses from boys?
7. Oh yuk, that sounds gross!
8. And I don't even think anyone can REALLY do that.
9. Kapowie?
10. Now you're a goose! (child waves hands at examiner, like a magician)
11. Squawk, squawk, squawk, squawk! (child waves arms up and down, like flapping wings)
12. I'd like to be a goose.
13. And they're flying around.
14. And then they're dive bombing houses.
15. Vroom, vroom! (child moves arms horizontal, to look like wings on airplane)
16. And they're not afraid of anything.
17. Just like me. (child laughs)

Figure 4. Orson's retelling of "The Six Swans." (Below Grade Group)

from beginning to end." In fact, Sandy began her retelling, "It was about a girl . . ." and ended it "That's all it was about."

These examples by Brandy, Steve, and Sandy are representative of retellings of children in the AGG, GLG, and BGG groups, respectively. However, a fourth example presented here is by another child in the Below Grade Group, and demonstrates the diversity that was present across the retellings of these 24 second-grade children.

The retelling by Orson (age 7 years, 3 months) lacked detail and accuracy, and did not follow any logic of the story. His sense of story was notably immature, and his retelling showed few features of story language, such as formal beginning, dialog, and past tense. "Story-like" plot structure, causal relationships, and sense of an ending were not present. Perhaps most unique was Orson's inability to use the language of the story. His entire retelling was recounted in the present tense, as if events in the story were happening at that very moment. His language sounded as though he was watching a movie and telling what he was seeing as he viewed things from moment to moment. Developmentally, the language in Orson's retelling was similar to that described by Sulzby (1985b) as "Following the Action" when kindergartners were asked to read a favorite storybook. Orson's atypical performance warrants some additional information for his case. Although Orson's grade equivalent score in comprehension was 1.1, he was not enrolled in any special education classes, and English was his primary language.

The structure of children's retellings also differed across groups with regard to the type of folktale elements included. Propp (1968) states that the first seven functions may be regarded as the preparatory section in the folktale, and the folktale used in the present study contained six of these seven functions. Although children in the Above and Grade Level Groups included many of these first six functions in their retellings, children in the Below Grade Group included few, if any, of these preliminary functions. These children most often began their retellings with Propp's eighth function, in which the villain in the story causes harm or injury to one member of the family.

DISCUSSION

Research with oral/written language differences indicates that written language is more decontextualized than oral language (Chafe, 1982; Olson, 1977; Rubin, 1978; Tannen, 1982). Retellings by some children in the present study were monologic and noninteractive, composed without the need for any paralinguistic cues. In contrast, other children created retellings that contained an oral conversational style that relied on interpersonal involvement between the storyteller and the listener. Chafe (1982) suggests that written language incorporates a richer and more varied vocabulary, and is more syntactically integrated than oral language. Certain children in the present study blended some of the literary vocabulary and syntax of the stimulus folktale into their retellings, reflecting an implicit awareness that certain types of words, phrases, and word orderings are found in storybooks.

Importantly, the differences observed across the retellings of these second-grade children paralleled their level of reading comprehension. Those who were above grade level in reading comprehension showed a clear sense of the written-narrative register, and had a fairly mature sense of story. Retellings by children who were reading at grade level showed a great deal of vascillation between oral and written registers, suggesting that this differentiation process continued to play a prominent role for them. Finally, children whose comprehension was below grade level demonstrated a rudimentary knowledge of "sense of story" and written language.

Retelling stories has been used as an assessment tool in researching developmental patterns in story comprehension (e.g., Stein & Glenn, 1979). More recently, Morrow (1990) has described the benefits of using story retelling as both an assessment tool and instructional strategy for story comprehension in early childhood. Beyond the preschool years, however, once children enter the formal instructional setting, comprehension is traditionally measured through a paper and pencil test in which the child must read passages of text and choose the picture explicating the passage or answer a question about the passage. This format allows only a single avenue for assessing comprehension, providing only one perspective on a child's comprehension of a story. Since the child is required and allowed to give only discrete, literal responses, Morrow (1990) cautions that comprehension assessment is defined by the questions asked, and proposes that it should be the child's response that is the focal point of comprehension evaluation.

Results from the present study suggest that story retelling offers a valid source of information concerning the ability to reconstruct meaning by children beyond the preschool years. Children enter school and are engulfed by formal reading instruction; however, the data reported here suggest that their knowledge and expectations about written language are still being explored, clarified, confirmed, and disconfirmed. These results show that, even among second-grade children who have been exposed to basal reading instruction, their underlying concepts about written language can be characterized as unstable and not-yet-conventional. Asking children to retell stories offers us a means of gaining insight into the ongoing process of literacy development well into the primary grades.

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ASSESSING CHILDREN'S INFERENCING STRATEGIES

Susan B. Neuman
Temple University

It is widely accepted that the ability to draw inferences is critical for reading comprehension (Anderson & Pearson, 1984; Spiro, 1980). At the most general level, inferencing is a constructive thinking process, requiring the reader to elaborate upon the explicit information presented in a text. A large number of studies have demonstrated the integral role of inferencing in the comprehension of and memory for text (Bransford & Johnson, 1972; Goetz, 1977; Kintsch, 1986).

For many readers, however, inferential comprehension is more difficult than other comprehension processes (Hansen, 1981). Three explanations have been hypothesized to account for these difficulties. The first is that differences in prior knowledge may influence children's ability to make inferences. Pearson, Hansen and Gordon (1979), for example, found that children with greater prior knowledge on a topic were able to draw more inferences than those with weakly developed schemata. Thus, deficiencies in prior knowledge may account for limited inferencing in certain situations.

Research by Paris and his colleagues offer a second explanation. They suggest that young children tend not to apply their inferential strategies thoroughly, unless specifically directed to do so (Paris & Lindauer, 1976; Paris & Upton, 1976). For example, 7-year-old children failed to comprehend inferences spontaneously and could not use indirect cues to access memory. Nevertheless, when these children were directly encouraged to dramatize the sentences, they could use both implicit and explicit cues equally well. These results suggest that while developmentally capable, young children may not naturally engage in strategies to "go beyond the text."

Evidence from classroom instructional practices suggests a third alternative. Studies report that students are not typically asked inferential questions in reading (Hansen & Pearson, 1983). Further, teachers tend to teach their good and poor readers differently (Allington, 1983) resulting in poor readers receiving even less instruction in inferential thinking than good readers.

Most of these studies, however, have examined inferencing at the point of retrieval or when an investigator imposes a task upon readers demanding such reasoning. These types of inferences may not be made routinely during the ongoing comprehension process. Further, as Frederiksen (1975) and Kintsch (1974) argue, inferencing may occur at the point when incoming data is encoded into memory. This suggests that studies measuring inferences at retrieval only may underestimate those that are made during the comprehension process itself.

The present study, designed to measure children's inferences, differs from those previously cited in several specific features. First, it examined inferencing strategies using a verbal recall technique as children are comprehending text. Second, unambiguous texts (two short mystery stories) were used. It was reasoned that well-constructed mystery stories might enhance ecological validity by naturally encouraging children to predict and infer from text without direct probing. Third, good and poor readers were selected to analyze if differences occur in inferencing strategies. Fourth, the inferences strategies examined emerged from the subjects' reading of these texts, rather than a predetermined set of categories.

With these considerations in mind, this study was designed to address the following questions: (a) Do young readers generate inferences as they read stories? (b) Which types of inferencing strategies do readers make during comprehension? (c) Do low- and high-proficiency students employ similar inferencing strategies? (d) Are there differences in children's ability to successfully apply inferencing strategies?

Access to these comprehension strategies among adults and older children have been obtained in many cases through variations of verbal reporting techniques. Collins, Brown and Larkin (1980), for example, elicited verbal reports of skilled adult readers' thinking processes as they interpreted text. This technique, however, has not been regarded as most appropriate for young or poor readers who may be less able to introspect about their cognitive knowledge (Brown, 1980). Introducing a modification of verbal reporting, Phillips (1988) used a limited-probe-when-necessary technique, where clarification questions were used after students read brief episodes of text. This approach helped to increase the completeness of reporting as well as to minimize the interval between processing and retrospection considered to be essential in obtaining reports of cognitive activity. Further, her approach combined aspects of retelling and verbal reporting. Students were first given opportunities to tell all they wished about a particular episode without probing; then, if or when necessary, clarification questions were asked. Norris (in press), in a validation study, found that these verbal reports did not alter subjects' comprehension processes or performance. Consequently, a similar approach was adopted in this study.

METHOD

Subjects

The subjects were 42 fifth-grade students from 11 classrooms in an urban school district in the Boston metropolitan area. The sample, primarily from blue-collar families, was ethnically diverse, including 70% Caucasian, 15% Asian, and 15% Black. All students spoke English as their first language. None were identified as learning disabled. High achieving students ($N = 21$), those who scored above the 85th percentile on the Metropolitan Achievement Test (Prescott, Balow, Hogan, & Farr, 1978) ($M = 90.81$, $SD = 4.37$), and low achieving students ($N = 21$), those who scored below the 50th percentile ($M = 32.67$, $SD = 8.85$), were selected from each classroom.

Materials

Two stories were used from the *Bloodhound Gang* mystery series (Children's Television Workshop, 1983): "The One-Ton Jewel," about a "white dwarf," a jewel supposedly from outer space that was to be auctioned for a great deal of money, and "The Blob," a story of a stolen ice sculpture. The stories were well-structured, involving female and male characters appropriate to the children's age and interest level. "The Blob" included 931 words, and "The One-Ton Jewel," 1,294 words. Both were written at the fourth-grade reading level according to the Fry Readability Formula.

Stories were each divided into six episodes; each ended with the introduction of a new clue related to solving the case. Colored pieces of paper were inserted in booklets containing each story to indicate ends of episodes. General prompting questions were used if or when a clarification of children's inferences was required. For example: (a) Did you find any clues in your reading? (b) What do you think will happen next? Why do you think so? (c) Does this give you any ideas?

Procedure

Students met individually with the researcher or a graduate assistant in reading and language in a private room for one session of approximately 30–50 minutes. Using a sample protocol, the researcher described the verbal reporting procedures, emphasizing the open-endedness of the activity and assuring them that no corrections or grades would be given for responses.

Students were then asked to read two stories, episode by episode. Story selection for both groups was counterbalanced. Students were told to request the pronunciation of any unfamiliar word, and to read at their own pace. After each episode, the researcher asked each student what came to mind while reading the story, using the clarification questions only when the student was not clear or when he or she appeared to be hesitant to make inferences. Students were asked to verbally report on six episodes in each story for a total of 12 times. These sessions were audiotaped and transcribed verbatim.

Data Analysis

Verbal reports from each story were combined to form a protocol for each student. Each protocol was divided into *idea units*, defined as a proposition containing at least one relational concept and one argument. Two judges examined idea units in a sample of 10 protocols to determine whether each represented a *recall idea unit*, one that was stated directly from the story, or an *inference level idea unit*, one that might be suggested but not stated in the text. Percent of agreement between judges was 98%. The average frequency of recall and inference idea units was 36% and 64%, respectively.

Protocols were then examined by three judges to determine which inferencing strategies children used in comprehending the stories. The term *strategy* was defined here as a plan or technique used by readers for interpreting materials. Similar to Phillips' research (1988), it was considered independent of the correctness of the actual interpretation.

From extensive discussions and analysis of the protocols, a typology was developed following Trabasso's basic distinction of two types of inferences: text-based and slot-filling (1980). In *text-based inferences* the individual finds semantic or logical relations between propositions expressed in a story. In *slot-filling inferences* the individual fills in missing information to make connections between events discussed in a text. A third category, referring to miscellaneous strategies including reiterating and refraining from inferencing was also added.

It was also clear that students, on occasion, attempted a particular inference strategy, but misconstrued information. For example, in trying to bind together different propositions, the child might draw an incorrect conclusion. Therefore, aside from categorizing protocols according to inference strategies attempted and frequency of their use, an error rate was obtained, indicating the ratio of implausible inferences over attempts.

Two judges then independently coded 10 protocols; interrater reliability on the identification of strategies used was 85%. After establishing reliability of the coding system, each inference idea unit in all protocols was classified by strategy.

RESULTS AND DISCUSSION

The first set of analyses addressed inferencing strategies children use while reading stories, and analyzed whether there are differences between strategy use on the basis of children's reading proficiency levels. The second set of analyses examined differences in the successful application of these strategies and qualitatively analyzed the types of errors that occurred when reading.

Types and Frequency of Inferencing Strategy

Eight inference strategies were used by the subjects. Three types appeared to be text-based. The first, *binding*, referred to an attempt to drawn conclusions on the basis of a number of stated facts. The logic followed something like, "if 'x' were there, and 'y' were there, then they both must have been involved in the crime together." The second type, *rebinding*, similar to the strategy defined by Collins, Brown and Larkin (1980) and Phillips (1988), appeared when new information apparently led to a conflict in the student's understanding of the story. Here, the reader was forced to either adjust new information to fit the past interpretation, or readjust their previous understanding with the new data. For example, following her decision that Smiling Jimmy stole the Blob, the student says, "Well, wait I think there probably never was a Blob." The third strategy, *confirming*, occurred when a new fact was used to explain a prior interpretation. This type of inferencing appeared to model the process of instantiating slots within a selected schema (Anderson & Pearson, 1984) as students attempted to provide a coherent overall representation of the story. For example, a student confirming that the rock or star was fake, added "because Vickie said that she could lift it up with one hand."

Three types of slot-filling inferences were identified. *Assigning default values* occurred in the absence of specifically substantiating information in the text. In this strategy, students constructed hypotheses about events of the story based on their background information, and/or their knowledge of story structure. For example, one student assumed that the "white dwarf," which was a dead star from outer space, was actually a "dead rock and roll singer" from the band "White Dwarf." The second type, *empathizing*, involved a personal response. Here, children seemed to emotionally place themselves in the story, attributing feelings to characters on the basis of their own beliefs and responses. For example, after reporting that Vickie thinks the "White Dwarf" is a fake, the student said, "Everybody's gonna be surprised when she picks it up." *Proposing solutions*, the third slot-filling strategy, referred to attempts to invent new solutions not related to information presented thus far in the text. For example, recalling that it was probably Smiling Jimmy who stole the Blob, the student proposed that he might "just dispose of the Frozen Blob in the river."

Children used two other strategies. The first was simply *reiterating* a previously made inference without adding any new explanation or interpretation, such as "Yeh, I think he did it." The final strategy included *refraining* from responding, by saying "I'm not sure," or "I don't know." Though reflecting a lack of knowledge, this strategy appeared at times to express children's tolerance for ambiguity or ability to remain open to multiple interpretations.

The average frequency of strategies used and standard deviations are reported in Table 1.

Clearly the slot-filling strategy of assigning default values was employed most often, accounting for approximately half of all reported inferences. Other strategies used frequently were text-based, including binding story elements together and confirming prior interpretations with new information. Perhaps due to the task, there was little evidence of rebinding or empathizing with characters or character actions in either group. Reiterating and refraining strategies were used with relative frequency, indicating a lack of knowledge or an unwillingness for various reasons to draw inferences.

To examine differences in strategy uses among high and low readers, a multivari-

Table 1

Means and Standard Deviations for Frequency of Strategy Use for Good and Poor Readers

	Good Readers		Poor Readers	
Strategy	*M*	*SD*	*M*	*SD*
Text-based Inferences				
Binding	18.55	10.75	13.00	6.98
Rebinding	.95	1.99	1.55	2.11
Confirming	12.25	4.45	14.23	6.00
Slot-filling Inferences				
Assuming Defaults	47.80	15.12	50.41	12.93
Empathizing	1.45	2.28	.95	1.59
Proposing New Solutions	3.65	3.28	4.77	4.93
Other				
Reiterating	5.60	3.49	6.95	5.08
Refraining	9.75	9.31	8.14	9.06

ate analysis of variance was performed with the frequencies of the uses of the eight strategies as dependent variables. No significant differences were reported between groups ($F(1, 40)$ = Wilks Lambda, 1.25, $p < .30$). These results suggest that similar strategies appear to be used by good and poor readers when constructing meaning from text.

Examining Children's Errors

Though employing similar strategies, an analysis of mean frequencies of errors indicated striking differences in their successful application between good and poor readers. With an average of over 18 errors per protocol, poor readers clearly misconstrued information more frequently than good readers. A one-way analysis of variance indicated that these differences were statistically significant ($F(1, 40) = 25.53$, $p < .001$).

These errors were qualitatively analyzed to examine the nature of these difficulties. Three categories of difficulties appeared to account for students' incorrect responses: (a) *overreliance on background knowledge:* a reliance on intuition or prior knowledge of an idea or character trait in the face of conflicting textual information; (b) *overreliance on short-term memory:* a focus on decoding specific facts or words in a story while ignoring relations or meanings among these facts; and (c) *inability to impose order on text:* poorly organized incoming textual information led to erroneous conclusions.

Interrater reliability, established for error categorization, was .89. Once reliability was established, judges independently coded 554 inferencing errors. Table 2 describes number and percentage of errors by category for good and poor readers.

Overreliance on background information to the detriment of considering all textual information appeared to be the most common source of error. In qualitative terms, it also represented the most serious kind of distortion, often guided by schema contrary to the story's actual events and intended meaning.

Given the poor match between schema selection and textual information, students had difficulty slotting incoming information, tending to rely on short-term memory rather than on forming a consistent interpretation. With inefficient schema and incon-

Table 2

Number and Percent of Errors by Category for Good and Poor Readers

	Good Readers		Poor Readers	
Error Category	Number	%	Number	%
Overreliance on Background Knowledge	64	7	156	15
Overreliance on Recall	43	5	137	13
Inability to Impose Order on Text	41	4	113	11
Total Errors	148	16	406	39
Number of Inferences	934		1,065	

sistency among incoming facts, relationships among the parts and the whole were rather arbitrary and insufficient.

These results, together with the previous analysis, suggest that while similar strategies appear to be employed by good and poor readers, poor readers are more apt to ignore the text in favor of their own intuitive responses, often rather arbitrarily recalling facts without evidence of consolidating them into a consistent and satisfying interpretation.

CONCLUSIONS

In contrast to previous assumptions about students' difficulties in making inferences, this study found that children frequently engaged in a number of inferencing strategies. Inferencing occurred during the encoding process, as children were interpreting incoming data. This finding suggests that studies analyzing inferencing during retrieval alone may be seriously underestimating the frequency of inferences used by children in comprehending stories.

Good and poor readers appeared to use a similar repertoire of inferencing strategies. This finding supports and extends research by Oakan, Wiener, and Cromer (1971), and Olshavsky (1976–1977), who found that strategies employed and frequency of their uses in comprehending materials did not significantly differ among high and low proficiency groups.

However, poor readers clearly appeared to accept unconventional interpretations of stories. For example, never questioning her assumption, one student suggested that the meaning of putting a robber away or "in" ice as she remembered, meant that the robber was going to be "placed in an ice bucket." Since she did not appear to comprehend the story to begin with, she was not able to detect when the meaning of the sentence had, indeed, become anomalous.

Qualitative analyses of errors suggests that, in contrast to lack of prior knowledge, many poor readers adopted inefficient schema, allowing them to accurately slot only a portion of text. When the text did not conform with their existing interpretation, it would tend to be either overlooked or "rewritten." Therefore, it was not lack of prior knowledge, as much as the wrong prior knowledge that students' brought to the text. This view supports Nicholson and Imlach's finding (1981) that children's prior knowledge often competes for priority in children's inferencing, with intuitive knowledge at times interfering with the complex process of constructing meaning from text.

In summary, rather than strategy training, teachers may well be advised to emphasize a number of direct instructional activities which help students focus on textual materials. Discussion of the topic to be read subsequent to comprehension might be one of the more efficient ways of enhancing children's understanding of stories. For example, as little as 10 minutes of general discussion prior to reading appears to significantly affect children's comprehension (Neuman, 1988). Further, techniques that encourage children to attend to text and justify their responses on the basis of text information are important. For those readers with low expectations of print in particular, instruction and practice may have direct consequences on their inferencing performance.

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DEVELOPING LOW-PERFORMING, FOURTH-GRADE, INNER-CITY STUDENTS' ABILITY TO COMPREHEND NARRATIVE[1]

James H. Mosenthal
Michigan State University

For the past 15 years, the reading education community has been concerned with the nature of comprehension and the forms of comprehension instruction. Building bridges from the former to the latter, from theory to practice, was provoked early on by Durkin's critique of classroom comprehension instruction and basal teachers' manuals (1978–79, 1981). There has been a large response to this challenge resulting in specific, theory-based strategies for providing "relatively direct or explicit instruction in comprehension," especially for the low-achieving student (Brown, Palincsar, & Armbruster, 1984, p. 255). Representative of these strategies are Palincsar and Brown's reciprocal teaching strategy (1986), Au's Experience-Text-Relationship strategy (1979), and Raphael's Question-Answer-Relationship strategy (1982). All of these strategies follow principles of direct comprehension instruction as discussed by such researchers as Collins and Smith (1982) and Pearson and Gallagher (1983).

But there is a second bridge that has been harder to build—the one from tested comprehension practices to incorporation in ongoing classroom instruction. Wendler, Samuels, and Moore (1989) found in their observations of teachers that the amount and quality of comprehension instruction was no different than that observed by Durkin (1978–79). They conclude that "teachers may be confused about the difference between assessment of comprehension and direct instruction of comprehension" and that "it is possible that either teachers do not know about these recommendations because they are so new, or that teachers would like to use direct instruction but do not know how to do it" (Wendler, Samuels, & Moore, 1989, p. 396).

It is also possible that the conditions of classroom instruction mitigate against incorporation of direct comprehension instruction into ongoing classroom practice. Barr and Dreeben's work (1983) on the relationship between classroom conditions and learning point to the constraints on novel or multiple forms of instruction imposed by these conditions. These constraints are especially restrictive when: (a) there is an extreme range of ability within a classroom, and a relatively large number of low-achieving students; (b) there is a lack of materials of various levels of difficulty within a grade level; (c) class size is large; and (d) the teacher has little experience. (See Barr, 1982.) Mosenthal's (1987) attempt to replicate the effects of reciprocal teaching in the inner city, where these conditions were present, seems to bare out the difficulty of incorporating novel instruction, given restrictive classroom conditions.

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The purpose of this paper is to describe an instructional project working with low-achieving fourth graders in a single classroom of an inner-city school. The significance of the description is that it depicts the complexity of incorporating principles of direct comprehension instruction into ongoing classroom instruction. We attempt to show how classroom conditions and principles of direct comprehension instruction interact in the development of feasible instruction that results in student growth. In the paper we address three issues: (a) responding to the conditions of classroom teaching and learning, (b) providing explicit comprehension instruction, and (c) documenting growth. This work was carried out over a 12-week period as part of a long-term staff development project.

CHANGING THE CONDITIONS OF INSTRUCTION

The classroom was part of an elementary school of a public housing project in a large city. The school district prohibited grouping for reading instruction and required that teachers teach all students from the grade level basal text. Classrooms in the school, on the average, had over 30 students and represented a broad range of ability with a high proportion of low-achieving students. All students in the elementary grades worked from the grade level basal. In setting up the conditions for instruction the staff developer and the teacher took steps to change or respond to three conditions: (a) the large number of low ability students, (b) the nature of the materials, and (c) the exclusive use of whole-class instruction in a classroom of 32 students.

Instead of grouping the whole class for instruction, and thus increase the likelihood of managerial and disciplinary problems, the decision was made to group the lowest achieving students in the classroom for a regular, 2-day comprehension lesson. The grouped students were the 7 lowest achieving fourth graders, as chosen by their teacher. Their average age at the end of third grade was 9.33. Their ITBS Reading Achievement scores at the end of third grade averaged 2.43. Individual ages and scores are presented in Table 1.

To match the reading ability of the students with materials of an appropriate difficulty, the staff developer brought in a set of second-grade basal readers (Eller & Hester, 1984a and b). The stories discussed in the lessons were taken from these readers. The only criterion for selection was the teacher's and staff developer's intuition about the quality and interest of the stories.

Most important in the instruction was the expertise and experience of the classroom teacher. The teacher had 12 years of teaching experience, though only in her second year in the city and school where the staff development took place. She had a strong rapport with her students, and had excellent management skills and understanding of comprehension processes. In her previous practice she was used to grouping students for instruction. She collaborated in the development of the comprehension lesson.

Table 1

Story Retelling Data

			The Tricky Troll			Sing Sack Sing			Benjie		
S	Age	ITBS	R*	C**	O***	R	C	O	R	C	O
1	9	2.3	.00	.00	0	.75	.43	1	.50	.42	1
2	8	3.0	.75	.13	0	.74	.45	2	.76	.38	1
3	9	1.7	.34	.22	1	.64	.45	1	.79	.62	2
4	unk	unk	.58	.30	0	–	–	–	.54	.30	2
5	10	2.9	.00	.00	0	.67	.29	0	.63	.48	1
6	10	2.5	.62	.17	0	.88	.27	0	.55	.24	2
7	10	2.2	.43	.07	0	.62	.23	1	.73	.38	2
MN	9.3	2.4	.39	.13	.14	.72	.35	.83	.64	.40	1.57
SD			.30	.11	.38	.10	.10	.75	.12	.12	.54

*R = Relevance or number of causally relevant clauses in retelling/total number of clauses in retelling.
**C = Completeness or number of causally relevant clauses in retelling/clauses in ideal retelling.
***O = Outcome or parts of outcome included in retelling.

DIRECT COMPREHENSION INSTRUCTION

The comprehension lesson was designed to increase students' comprehension of narrative text and to be feasible in the classroom. The activity was carried out regularly over time (12 weeks). In addition, the activity provided the same kind of comprehension instruction that might be given to students performing at grade level (see Brown, Palincsar, & Armbruster, 1984). In other words, it focused on reading, writing, and discussion of text as structured by strategies developed by the teacher and staff developer. The use of the strategies followed principles of direct comprehension instruction. The purpose of the two-part lesson and the strategies were explained and modeled for the students. Over time the teacher guided the students in the use of the strategies.

The students were engaged in a 2-day reading/writing comprehension lesson conducted once a week. During the first day of a lesson the teacher and students read and discussed a story following a modified Directed Reading-Thinking Activity or DR-TA (after Stauffer, 1969). At the end of the discussion the students wrote a retelling of the story. No assistance was given in the writing of the retelling. This was done in order that the students individually attempt to work out the completeness or sensibleness of the story already constructed in the DR-TA. In other words, the DR-TA discussion worked out the completeness of a story as a group activity. As a result, all information relevant to a retelling was elicited in the discussion immediately prior to the written retelling.

Before the second part of the comprehension lesson the teacher and staff developer read the students' retellings. The retellings were informally evaluated on whether they included relevant beginning, middle, and ending content. Based on this evaluation the teacher and staff developer decided upon what introductory comments should be made at the beginning of the second part of the lesson to focus the group activity of writing a retelling. For example, when the first retellings were brief and unconnected the students were encouraged to write more. When the retellings tended to be verbatim renderings of the story, breaking off abruptly when the student needed to finish, the students were encouraged to think of the retelling as a kind of summary which included information about the beginning, middle, and ending of a story.

On the second day the teacher and students constructed their own written retelling of the story discussed the day before. The teacher followed a plan for generating a group written retelling developed by her and the staff developer. This included providing a "retelling-starter" such as, "This is a story about a girl who disobeyed her mother." Students were then prompted to discuss what information should come next in the retelling. Students wrote their own ideas of what should come next based on the group discussion. This continued through 3 to 5 cycles of asking "What should come next?" until the resolution of the story was reached and the students completed their group-aided retelling.

The rationale of the 2-day lesson was to confront the students' own version and concept of a retelling written on the first day of the lesson with a model retelling they helped construct on the second day. This awareness of a gap between their work as individuals and their work as a group functioned as a stimulus to growth in the discussion and writing of subsequent lessons. In terms of development, the intent of the lessons was to develop the students' ability to comprehend text as a whole as reflected in the completeness of their written retellings.

The decision to use written retellings was made because of what it reveals about the students' comprehension. Retellings, at a very basic level, ask students to construct or represent their understanding of the whole of a text they have read. In one sense, the retelling reflects the extent to which the student has been able to construct a causal chain of the events of a story (see Trabasso, 1981). A causal chain can be likened to a target structure or coherent representation of events in a story that is a basic goal of reading narrative (see Collins, Brown, and Larkin, 1980). This coherence or understanding is achieved through inferencing strategies that enable the reader to progressively refine the coherence of the causal representation of events. A retelling reflects a reader's causal understanding of a story as a whole and the presence or lack of sophisticated inferencing strategies. Similar arguments for oral retellings by young readers have been made by Gambrell, Pfeiffer, and Wilson (1985), and Morrow (1985).

Another reason for using written retellings is that they are written. Writing has become a partner to reading in teaching for understanding. What writing contributes that reading and discussion don't is the student's text—a concrete manifestation of the student's understanding. Writing a retelling, like writing generally, requires that the student fix his or her understanding of a story in the form of a text—in this case a retelling. This is a different type of understanding than that reflected in a response to a question about a part of a story. It is a concrete reflection of what has been constructed about the story as a coherent, causal whole. As such, the written retelling forces a more exact and articulate understanding than required in oral comprehension tasks.

The written retelling, used to assess comprehension, is a liability to the extent that it is influenced by the students' writing fluency. However, when treated as a comprehension activity or task, in other words as the object of instruction, the written retelling engages cognitive processing of text in a manner and a degree which group discussion and oral retellings do not. Our argument is that this processing of text, to the extent that it is individual and requires "fixing" one's understanding of the whole of a story, can be a main contributor to students' learning to comprehend as well as learning what it means to comprehend narrative.

STUDENTS' GROWTH

As noted above, the teacher and staff developer informally evaluated the nature of the students' unaided written retellings on a weekly basis. As the students demonstrated a capacity to write an unaided written retelling which included relevant beginning, middle, and ending content, this focus of the comprehension lesson was stopped. This occurred after the 12th lesson. A story summary and a student's unaided written retelling for the 3rd, 7th, and 10th lessons are given in Appendices A, B, and C. These lessons were based on stories titled *The Farmer and the Troll, Sing Sack Sing,* and *Benjie*, respectively. As is apparent from the contrast in the quality of the retellings, this student comes to understand the demands of the retelling task and is able to write a retelling including relevant beginning, middle, and ending content. His growth is representative of the growth of the other students. To provide a more formal analysis of change in the quality of the students' retellings, an analysis of the causal cohesiveness of the retellings was carried out.

The Analysis of the Students' Retellings

In the formal analysis of the students' unaided written retellings, the stories read during the 3rd, 7th, and 10th lessons were analyzed. For each story discussed and retold, the staff developer and a research assistant wrote an ideal retelling. It was ideal to the extent that only information necessary to reconstruct a causal chain for the story was included. These ideal retellings were developed based on an analysis of their causal relations following the method developed by Trabasso and his colleagues (Trabasso, Secco, & van den Broek, 1984; Trabasso & Sperry, 1985; Trabasso, van den Broek & Suh, 1989).

Two measures are cited as important by Trabasso and his colleagues: recall of information on the causal chain, and recall of important information within the causal chain. The causal chain is the chain of clauses which are necessary to trace the development of the story from beginning to end. The ideal retellings are reconstructions of the causal chain of events for a story. Recall of important story information within the causal chain is content whose causal importance is high, relative to other content on the chain.

These measures were adapted in the present study. Students' unaided written retellings were parsed clausally. Clauses which matched clauses in the ideal retelling were coded. To see how much of the students' retellings included information on the causal chain of the story, we calculated the proportion of the students' clauses which could be matched to the ideal retelling. This measure can be thought of as an indicator of the extent to which a student only includes causally relevant information. We will refer to this as the Relevance variable. As the amount of causally relevant information increases the value on this measure approaches 1.00. A score of 1.00 indicates that every clause in the student's retelling matched a different clause in the ideal retelling.

We also calculated the proportion of the clauses in the ideal retelling which were matched in the students' retellings. This measure indicates the extent to which, over time, more of the information on the causal chain is included by the students. We will refer to this as the Completeness variable. As the students include more causally important information values on this measure approach 1.00. A score of 1.00 indicates that a student's retelling matched the ideal retelling.

A third measure was created to get at the extent to which the student recalled the most causally important information in the ideal retelling. Because the ideal retellings were long (the average was 51 clauses per story) and complex when compared to the artificially constructed stories used by Trabasso and his colleagues, it turned out to be difficult to isolate a few, most important clauses. Typically, sequences of clauses describing an action or a line of argument functioned as a single unit. In addition, many clauses shared the distinction of having the highest causal value in the causal chain represented by the ideal retelling. As a result, it was rarely that all of the causally most important clauses were included in the students' retellings.

Therefore, it was decided that the most important information for the students to recall was information about the outcome and resolution of the story. From the informal evaluations of the retellings it was evident that the students had the most difficulty including relevant ending information in their written retellings. To determine whether relevant information having to do with the outcome of the story was included, the following measure was developed. Each story follows a general pattern. Each story first develops a problem or goal of the protagonist (the farmer can't get rid of a troll who causes trouble; Rosita is kidnapped; Benjie is shy and his grandmother has lost her favorite earring). Then the story develops the action the protagonist takes to achieve the goal/overcome the problem (the farmer poses a deceitful bargain; Rosita sings a song attributable to her; Benjie fights his shyness and tries to find the earring). Finally, the story develops a resolution (the troll accepts the bargain and never knows better; Rosita is freed by a friend and they arrange to have the kidnapper run out of town; Benjie finds the earring by overcoming his shyness). Retellings were scored as to whether they included a complete depiction of the story outcome. We will refer to this variable as the Outcome variable.

In scoring this measure, a "0" was given if the outcome was not explicitly mentioned. A "1" was given if the outcome was given but was incomplete. For example, in *The Tricky Troll*, if a student said the troll accepted the bargain but did not say the troll was tricked in the process a score of "1" was given. In *Sing Sack Sing*, if a student said Rosita was freed by a friend but did not say that the kidnapper was run out of town, a score of "1" was given. And in *Benjie*, if the student said Benjie found the earring but did not say that he lost his shyness, then a score of "1" was given. If both parts of the outcomes described above were given a score of "2" was assigned.

RESULTS AND DISCUSSION

Table 1 presents descriptive data on the students' written retellings. On the Relevance variable, which measures the proportion of the students' clauses that matched clauses in the ideal retelling, group mean scores increased from .39 for *The Tricky Troll*, to .72 and .64 for *Sing Sack Sing* and *Benjie*, respectively. On the Completeness variable, which measures the proportion of clauses in the ideal retelling included in the students' retellings, scores increased from .13 to .35 and .40 from the 3rd to the 7th to the 10th story. Perhaps because of the small sample size, these differences were not significantly different in a one-way ANOVA. However, given the teacher's and staff developer's informal evaluation of the retellings, the increase in the Relevance and Completeness variables appears to reflect the change in students' retellings observed during instruction.

These scores also indicate that students' retellings stabilized by the middle of the staff development (when *Sing Sack Sing* was read). In other words, with respect to the Relevance and Completeness variables, it is as if all that the students learned about retelling stories occurred by the seventh lesson. This conclusion, though, runs counter to the perceptions of the teacher and staff developer who continued the instruction for another 5 weeks.

Scores on the Outcome variable, which measures the extent to which students retold the outcome of a story, provide some support for the teacher's and staff developer's perception that there was room for improvement in the students' retellings, even after the seventh lesson. Treated as a continuous variable, mean scores on the Outcome variable increased from .14 to .83 and 1.57. These differences are statistically significant ($F(2, 17)=11.24$, $p<.01$). Using Tukey's HSD test (Kirk, 1968), the difference between the means for *Benjie* (Lesson 10) and *The Tricky Troll* (Lesson 3) is significant, $p<.05$. The mean scores for *Benjie* and *The Tricky Troll* are not significantly different from the score for *Sing Sack Sing* (Lesson 7). Thus, the difference indicates, with respect to the inclusion of outcome information, that students did not understand the importance of this information in a retelling at the time of the seventh lesson. This means that students were still learning to understand what it means to retell a story even after other retelling skills had stabilized by Lesson 7 when *Sing Sack Sing* was read.

Implicit in the above argument is the notion that the improved retellings were the result of the instruction. It could be argued that the retellings became more causally cohesive simply as a result of practice. It is impossible to untangle to what extent the students' improvement is due to the nature of the comprehension lessons or to the repetitive practice in writing retellings. The scores on the Outcome variable suggest that the students' growth was a function of practice *and* the content of the lessons since, as noted, these scores did not stabilize by the middle of training as did the other measures. In other words, the data from the Outcome variable suggests that the improved retellings were not simply a function of practice but of learning a conception of a retelling that included the adequate depiction of the outcome of a story. The outcome measure provides some evidence that the lessons themselves played an important part in directing students' thinking about what to include in a retelling.

This argument for growth over the weeks of the training is exemplified in the outcome information provided in the written retellings of Student 7 and given in Appendices A, B, and C. In his written retelling of *The Farmer and the Troll*, at the beginning of training, Student 7 does not state that the troll accepts the bargain presented by the farmer, and, necessarily, does not state that in accepting the bargain he is unaware of the trick that has been played on him. Thus for the outcome measure, Student 7 was given a score of "0." In his retelling of *Sing Sack Sing*, in the 7th week of training, Student 7 does state that Rosita is rescued but does not mention that the kidnapper was run out of town thus eliminating the threat of danger to Rosita. Here, Student 7 was given a score of "1." In his retelling of *Benjie*, in the 10th week of training, Student 7 states that Benjie finds the earring and overcomes his shyness in doing so. For this retelling, Student 7 was given the maximum score of "2."

Moreover, the set of causal measures suggest that as a result of training and practice students develop a more sophisticated conception of the whole of a story. This conception is defined in terms of the representation of a story's causal cohesion in a retelling. Over time, students included mostly relevant information in their retellings, more information on the causal chain of the story, and a more complete statement of the outcome of the story. It is important to note that this improvement occurred in the context of regular, valid comprehension instruction, a condition of reading instruction for low achieving students argued for by Brown, Palincsar, and Armbruster (1984).

CONCLUSIONS

In the previous section we have discussed changes attributable to the nature of the comprehension instruction provided. In analyzing students' written retellings we have argued that, as a result of the instruction and practice, the students' comprehension improved. We have argued that the nature of the lesson and the quality of the retellings point to an understanding of story comprehension that is causal in nature.

However, as important, if not more so, are the positive effects on students' learning provoked by restructuring the norms of classroom instruction. As discussed previously, these changed norms included grouping low ability students for direct comprehension instruction and using materials of appropriate difficulty. Evidence for the influence of the changed norms comes from an interview with the teacher at the conclusion of training. In that interview, the teacher discussed several advantages to the reading/writing lesson that are related to these concerns:

> I know at times in the beginning that they [the students in the reading/writing group] were elated that they were a part of a small group. I think the stories helped. They were stories they could read and they could enjoy. We combined silent, oral, and choral reading . . . . Most of the children are used to the round robin [reading] and I think they began to see that we don't always have to read orally. We can gain a lot of information from silent reading . . . . They like[d] the discussion.
>
> [At first] they weren't too particular about writing . . . . The minute you tell them to pick up a pencil . . . they become a little apprehensive and they're not crazy about it. But . . . they did enjoy [it] and I don't think it was a begrudging task [writing the

> retellings]. Basically [their attitude toward the writing changed] because of the praise they received on the completion of their writing task [on the first day of the lesson]. I saw a great improvement in their writing skills, which is something that we really don't do much [of] because we just do not have the time.
>
> They began to develop a very special sense about . . . they knew the organization of the program. They knew they were going to come back here and read and discuss . . . . The next time everybody came back with pencils and papers and they were ready to write. So they picked up on it very well. I thought that towards the end they were very eager to get back here and discuss and write what was going . . . because they saw an improvement in their writing. They saw improvement and I think they felt better about what they were doing.

In these comments the teacher makes reference to a number of conditions that had positive consequences that go beyond the effects of the nature of the training, that is, the improved retellings. It is as if the consequences of changing the conditions of learning in the classroom enabled or interacted with the nature of the training in stimulating student growth.

Of great importance in the teacher's remarks are the effects of having appropriate materials—"stories they could read." Matched to the ability of the students, the stories set the students up for academic success and the perception of their own success. This basic alteration of classroom norms was necessary for the success of any kind of direct comprehension instruction. As noted by the teacher, the provision of appropriate materials enabled the practice of such basic reading activity as silent reading, and it enabled the students' full participation in discussion of the content of a story.

Whereas the students' experience with reading was enhanced by providing appropriate materials, the students' experience with writing was enhanced by its mere inclusion as a regular activity connected to reading, and by its appropriateness, given the abilities of the students. At the beginning of training the expectations for the writing task were general. The teacher and staff developer looked for the inclusion of beginning, middle, and ending content. The specific form these expectations took on evolved from what the students wrote in their retellings. No tangential expectations, such as a concern for transcription skills, intruded on the general expectations for the retellings and the articulation of those expectations in terms of what the student wrote. The effect on the students, according to the teacher, was positive, again because of the students' perception of their own improvement.

Perhaps because of the appropriateness of the materials and the tasks, the students experienced an enjoyment in doing well at academic tasks. This enjoyment was complemented by the praise/reinforcement of the teacher. But this enjoyment was not immediate. It was a function of the regularity and predictability of the work and the students' growing perception that they could do the work and do it well. As the teacher states, "They knew the organization of the program."

All of the effects described above help to explain why the students were elated at being part of a small group. It cannot be argued that simply being in a group caused the elation, though this certainly helped form an identity they had not had before. Their identity as a group ultimately was a function of their perception of the legitimacy of the work and their success at it. And this identity as learners is at the root of their pleasure. As the teacher concludes later in the interview, "I was gratified that the children enjoyed it so much. They enjoyed coming into the group."

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APPENDIX A

Story Summary of *The Farmer and the Troll:*

A farmer and his wife live on their farm. One day things start to go wrong on the farm. Eggs are broken, the milk spoils, and so forth. The farmer and his wife figure out that a bad luck troll has come to live on their farm. They cannot get him to leave. In the spring the farmer, while getting ready to plant potatoes, discovers the troll underground. The troll says he lives underground. The farmer, realizing he needs his field to plant potatoes, makes a bargain with the troll. This year the troll can have what grows above ground and the farmer gets what grows below. The next year the farmer gets what grows above the ground and the troll below, and so on over the years. The troll agrees, not knowing he has been tricked by the farmer. From then on, each year the farmer planted a crop that grew its food under the ground or above depending on the bargain he had struck with the troll.

Student 7's Unaided Written Retelling for *The Farmer and the Troll*—Week 3:

1. The farmer is tricking the troll to fall for his plane
2. so he can trape him in the hole
3. so that he cannot give any more troible
4. I think he's going to cacth him
5. so he Won't him any more bab Luke any more

APPENDIX B

Story Summary of *Sing Sack Sing*:

Rosita's mother tells her never to go to the river or she may be kidnapped, as others have. On a hot day, Rosita disobeys her mother and goes to the river. She is kidnapped by a strange man, put in a sack, and told to sing when ordered to or be beaten with a stick. Rosita sings a song recognizable by people who know her. A friend does recognize Rosita by her song and frees her. They put rocks and mud in the sack. The man is run out of town when he cannot make the sack sing.

Student 7's Unaided Written Retelling for *Sing Sack Sing*–Week 7:

1. Roseitia disbeyed her mother
2. when She told her not to go to the river
3. And then She went to the river
4. and she Left her earings on the bank of the Lake
5. A man came around
6. got her earing off the bank of the village
7. he had sack
8. and Put her in it
9. and took her away from the bank of the rivere

10. if She didn't Sing Sack sigh
11. ill beat you with stick
12. for Suler earing was caugth
13. and then I was taught
14. her and her frind and come save her form
15. they Put Mud rocks in the sack
16. and as soon as moring he say sack
17. or ill beat you with Stick

APPENDIX C

Story Summary of *Benjie*:

Benjie, a shy little boy, lives with his Granny in the city. Every Sunday, the two of them go to church, and on the way home stop at the bakery for a small treat. One Sunday, on the way home, Granny discovered that she has lost one of her earrings. They search but can not find it. Benjie knows how important the earrings are to Granny. He decides to look again for the earring and goes back to the bakery. Overcoming his shyness, Benjie explains to the bakery lady the importance of the earring. Together they find it. At home, Granny is happy and realizes she doesn't have such a shy grandson anymore.

Student 7's Unaided Written Retelling for *Benjie*—Week 10:

1. This is a story about a boy
2. who was Shy Very shy to talk
3. every sunday they Walk to church Benjie and granny
4. Shy wore her very speical earrings to church
5. after church They went to the bakery
6. And when granny got home her earing wast Lost
7. and then she told benjui he coild go outsid
8. bit benjin about tell his mother
9. he was goinig to tell her
10. he was aboit to go find her earinge
11. Went bake to the bakey to find her earing in the bakey
12. and the bakey lady told benjie to go Play
13. he tried to tell her that granny earing wast ost
14. he went in the dark room to find granny
15. then he foid it in in the garbage can
16. then thke bakey said she will call the police on him
17. and then explode to her about earings
18. and the he went home
19. and he had gave her the earings
20. and she said we lost the old bingie
21. she was brod of him
22. becaise he was not Shy any more

LEXICAL COHESION IN COMPREHENSION AND COMPOSITION: A SYNTHESIS OF RESEARCH ISSUES

Richard B. Speaker, Jr., John G. Barnitz, and Joan P. Gipe
University of New Orleans

Research in a variety of disciplines has explored the role of cohesion (Halliday & Hasan, 1976; Hasan, 1984) in reading comprehension and composition (Chapman, 1987). Although such research has demonstrated the function of cohesive structures such as pronoun reference and connectives in the comprehension and well-formedness of short texts, comparatively little research has examined the role of lexical cohesion on text production and comprehension or investigated the role of lexical tokens in longer cohesive chains (see Chapman, 1987). Some studies are now emerging on the role of lexical cohesion and other cohesive devices in children's writing (Cox, Shanahan, & Sulzby, 1990; Cox & Tinzmann, 1988; McLin, 1987; Pappas, 1985); however, few researchers have examined children's sensitivity to and use of chains involving a variety of lexical and other cohesive tokens embedded in naturally occurring text or the relationship of those chains to other text factors such as text pragmatics and semantic hierarchies (see Friedman & Sulzby, 1987).

Meanwhile, a large body of research on vocabulary learning has emerged which can be related to lexical cohesion theory and research (cf, Elley, 1989; Freebody & Anderson, 1983; Gipe, 1978–1979; Herman, Anderson, Pearson, & Nagy, 1987; Jenkins, Matlock, & Slocum, 1989; McKeown, 1985; Nagy, Anderson, & Herman, 1986). Vocabulary research should be particularly interesting to researchers who investigate cohesion for three reasons: first, historically, vocabulary knowledge has been reported as highly correlated with reading ability (e.g., Davis, 1944; Terman, 1918); second, since the semantic structure of a text is encoded in its collection of cohesive chains, salient vocabulary items are the important lexical tokens in those chains; and third, the study of lexical tokens in cohesive chains should provide testable theories for vocabulary acquisition, composition, and comprehension research.

The purposes of this paper are to shed light on the roles of lexical cohesion in comprehension and composition and to provide directions for future research unifying cohesion research and vocabulary acquisition research within the framework of an integrated wholistic literacy paradigm. This will lead to a better understanding of the effects of complex discourse structures in literacy learning and vocabulary acquisition. The paper will present the following issues: first, a shift in the lexical component of the cohesion model; second, the focus on reading/writing/speaking/listening connections; and third, the nature of vocabulary acquisition from context. This paper is not intended to be a thorough research review; rather, it will highlight representative research studies relevant to the three issues while focusing on lexical cohesion, only one part of the larger cohesion system. (For discussion of instructional issues, see Baumann, 1986; Chapman, 1983; Irwin, 1986.)

ISSUE 1: A SHIFT IN THE LEXICAL COMPONENT OF THE COHESION MODEL

Halliday and Hasan (1976) produced the most influential cohesion model for English. Their cohesion taxonomy considered reference, substitution, conjunction, ellipsis and lexical cohesion as its major subsystems. The lexical cohesion subsystem consists of the vocabulary devices used in the text to cue a unified semantic network to the reader. Readers derive unity by applying their knowledge of word meanings which are connected by the text's semantic structure in chains through the text; in essence, the cohesive chains of a text are sequences of words in the text which mark semantic relationships for the reader. Halliday and Hasan's lexical cohesion taxonomy consisted of reiteration (repetition, synonymy, superordination, and general word) and collocation. (See Halliday & Hasan, 1976, for details and examples). Stotsky (1983), noting theoretical difficulties with this model, proposed a reorganization of lexical cohesion into two categories: semantically related words and collocationally related words. Hasan (1984) also produced a major revision in the lexical component of the model; her analysis of lexical cohesion consisted of two categories: general (repetition, synonymy, antonymy, hyponymy, meronomy) and instantial (equivalence, naming, semblance). Of particular interest in Hasan's revision is the development of the concept of cohesive harmony and her extension of the analyses of the types of cohesive chains in text; cohesive harmony is a measure of the level of semantic chain interaction in an extended text which accounts for the number of items (tokens) in the chains which are central to the text's structure and meaning, and therefore, directly related to a text's coherence (for details, see Hasan, 1984, or Cox, 1987). Hasan's revision of cohesion theory allows researchers: (a) to move from more simple quantitative measures of text cohesion such as the counting of ties to more qualitative analyses of different semantic chains containing lexical tokens, and (b) to perform a more complete analysis of cohesion as it extends through an entire text than was provided with the earlier rubric.

Under the earlier rubric for lexical cohesion (Halliday & Hasan, 1976), some studies examined the full range of cohesive structures (see Chapman, 1987, for a review). Lexical cohesion was found to be more difficult to comprehend than reference, substitution and ellipsis (Moberly, 1978), but Monson (1982) found lexical structures easier for 7-year-old children than the other structures. Lexical cohesion, particularly the length of lexically cohesive chains, is closely related to the quality of a writer's work (Eiler, 1979; Neuner, 1987). Good writers produce essays with a higher density of cohesive chains per t-unit (Cherry & Cooper, 1980; Witte & Faigley, 1981). Good adolescent readers also write essays with more cohesive properties, including lexical cohesion (McLin, 1987). Moreover, Stotsky (1986) found that not only did high rated essays by adolescent writers contain more lexical chains than did low rated essays, they included longer semantic units in the creation of these chains.

Under Hasan's rubric of lexical cohesion (Hasan, 1984), research has shifted away from the study of short referential cohesive ties towards interest in longer, naturally occurring texts where lexical tokens appear in extended chains (see Pappas, 1985; Pappas & Brown, 1987). Cohesive variables alone do not influence text production and comprehension in isolation from other aspects of textuality (see De Beaugrande & Dressler, 1981; Morgan & Sellner, 1980); indeed, the linguistic, cognitive and affective abilities of the reader/writer play important parts in comprehension of cohesive structures (for discussion, see Barnitz, 1986; Ruddell & Speaker, 1985). For example, cohesive devices such as pronouns are not necessarily difficult for children to comprehend in cohesive texts, especially when children apply appropriate knowledge of content and discourse (Goodman & Gespass, 1983). Cox and Tinzmann (1988) found differences in general cohesion knowledge among good and poor readers and writers. Pappas (1985) demonstrated that the structures of cohesive chains—their co-referential relationships—and the interactions of chains rather than the quantity of cohesive ties (see Mosenthal & Tierney, 1983) were important in developing a model of oral and written language performance. Because of this focus on cohesion in oral and written language, the nature of reading/writing/speaking/listening connections has become important in cohesion research.

ISSUE 2: READING/WRITING/SPEAKING/LISTENING CONNECTIONS

Current research and practice support the interrelationship of reading, writing, speaking and listening in the acquisition of literacy. The recent paradigm shift in literacy theory is toward a more integrated wholistic theory of literacy acquisition (Goodman, 1986). Research by Cox and others (e.g., Cox, 1987; Cox, Shanahan, & Sulzby, 1990; Cox & Sulzby, 1984; Cox & Tinzmann, 1987, 1988; Nuener, 1987) has demonstrated a close relationship between cohesion variables and reading and writing performance at various ages. Learners' use of lexical cohesive chains in writing is related to reading ability; better readers use more and longer lexical cohesive chains in their writing (McLin, 1987). The cohesive harmony of the writing of good readers is higher than that of poor readers across grades and text genres (Cox, Shanahan, & Sulzby, 1990). These investigations and their theoretical constructs have produced a host of new terms and concepts related to longer chains which should be considered such as distance, coherer, precurser, intersection, and network (Neuner, 1987), cohesive harmony (Hasan, 1984) and cohesive density (Pappas, 1985).

DeStefano and Kantor (1988) examined the cohesion variables in oral and written discourse of several ethnolinguistic populations (inner city black, Appalachian, and mainstream cultures). They compared children's reading material (basals and children's literature) to the oral patterns of cohesion in mother-child dialogues, finding many similarities between the mother-child dialogues among the ethnolinguistic groups and children's literature but a vast difference in basal materials. In particular, ellipsis and reiteration lexical structures in dialogues and children's literature were very similar, but reiteration was much more common in basal materials while ellipsis was rare.

It should be noted that Tannen (1985), when considering the decontextualized nature of written texts, pointed out that a writer must lexicalize suprasegmental, prosodic and gestural information which would be present in oral communication, making lexical chains an important factor to consider in examinations of oral and written discourse. Furthermore, with the application of cohesion analysis to situated discourse, researchers have a tool for identifying the chains of discourse surrounding texts used in the schools; thus, contexts which go beyond the text can be analyzed and described in detail rather than left undefined, providing an important analysis tool for naturalistic research in home and classroom settings or for experimental research where the nature of particular contexts is being investigated or manipulated. This suggests the need for research into the nature of lexical tokens in chains which extend through text and oral discourse.

ISSUE 3: NATURE OF VOCABULARY ACQUISITION FROM CONTEXT

Studies of vocabulary and text comprehension suggest the importance of lexical cohesion to vocabulary acquisition. Vocabulary items can form the salient tokens in lexical chains or they can be trivially contextualized in a text or an instructional procedure. Freebody and Anderson (1983) found vocabulary to be the major factor influencing performance on comprehension measures rather than nonlexical cohesion measures. They also found both lexical difficulty and topic familiarity were significantly related to comprehension. Herman, Anderson, Pearson and Nagy (1987) found that students gained more vocabulary knowledge from well elaborated texts.

These and other studies (e.g., Elley, 1989; Gipe, 1978–1979; Jenkins et al., 1989; Nagy, Anderson, & Herman, 1986) suggest that context is crucial to vocabulary learning and text comprehension. However, researchers have not yet reported a direct effect of vocabulary and lexical cohesive structures on both microstructure and macrostructure comprehension, probably, because the newer rubrics (Hasan, 1984; Stotsky, 1983), cohesive analyses of context structure, and the concept of cohesive harmony have yet to be incorporated into research studies on vocabulary acquisition and teaching. Furthermore, little attention has been paid to the analysis of contexts surrounding vocabulary in text or in instruction which can be provided by the analysis of cohesive chains in text or in discourse. In essence, we posit that vocabulary acquisition only occurs in contexts where the oral and written chains containing a new lexical token are extensive and important to the structure of the discourse. Therefore, vocabulary research and instruction must be reconsidered in terms of the construction of a set of lexically harmonious, cohesive chains in a situational context where the new token is embedded in important oral and/or written language. This presents a new direction for the integration of lexical cohesion research with vocabulary and discourse structure research.

SUMMARY, IMPLICATIONS AND DIRECTIONS FOR FUTURE RESEARCH

Taken as a whole, this research synthesis has revealed the importance of cohesion theory to aspects of literacy learning. Although in recent years there has been a rapid growth in research on vocabulary's function in literacy learning, explanatory theories still focus on the importance of context without necessarily developing explicit descriptions of the linguistic or instructional contexts involved. In the meantime, a slowly emerging body of research on lexical cohesion is providing explanations of the possible functions of cohesive chains in comprehension and composition.

This paper interrelated independent lines of research in order to understand text comprehension. The three issues discussed here lead to the following conclusions: (a) in recent years, the study of cohesion has moved to the examination of longer cohesive chains as opposed to a mere description and quantification of cohesive devices and their potential effects on composing and comprehending, (b) learners' abilities to use cohesive devices develop in both oral and written language processes, (c) lexical cohesion theory provides possible explanations for the effects of written and situational contexts in the acquisition of vocabulary. The synthesis implies that researchers in vocabulary and text comprehension reexamine lexical cohesion and cohesion theory. Likewise, cohesion researchers should discover the wealth of applications of cohesion theory to the understanding of important problems in literacy development.

For the purpose of developing and testing theories of the functions of lexical chains in reading and writing, further research is needed in at least the following areas: (a) the proximity and density of lexical tokens in cohesive chains in extended text; (b) the roles of lexical structures in the interrelationships of comprehension and composition, including but not limited to vocabulary learning and vocabulary choice; (c) the location of a chain's tokens in the semantic network of the text and the relationship of qualitatively different chains to the semantics represented in the text; (d) the effects of demonstrably different instructional and textual contexts on vocabulary learning and vocabulary choice; (e) the effects of prior knowledge and lexical cohesion on vocabulary acquisition, text comprehension, and composition. Research must examine the effects of lexical chains on microstructural and macrostructural processing and production of text viewed from a transactional/interactive theory of reading/writing in a variety of classroom and sociocultural settings, with a variety of learners, both children and adults.

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THE CONSTRUCTION OF NARRATIVES BY GOOD AND POOR READERS[1]

Rose-Marie Weber
University at Albany, SUNY

This study, part of a larger study on linguistic differences between good and poor readers, focuses on children's abilities to construct narratives.[1] In the approach taken here, constructing a narrative is viewed as a process of selecting, interpreting, and encoding complex, causally linked information into temporally ordered clauses, often with components of orientation, evaluation, and resolution (e.g., Haslett, 1986, following Labov, 1972; Peterson & McCabe, 1983). Through this approach, the linguistic means that children use to transform the activities and social relations of pictured characters into narrative discourse are analyzed. Good and poor readers are compared with respect to the ways that they solve the problem of encoding the events so that the discourse coheres into a story structure and makes a point.

This study of the productive abilities of children with differences in reading ability is intended to enlarge the details of linguistic knowledge and processing that normal and poor readers command so as to determine, with converging evidence, the possible sources of poor readers' verbal weaknesses and lag in reading ability. Vellutino and Scanlon (e.g., 1987) have offered an explanation for reading disability that implicates linguistic coding deficits as the principal source. They elaborate their perspective developmentally, pointing to deficiencies in encoding, storing, and retrieving phonological and syntactic components of language in younger children that in turn lead to deficiencies in processing semantic components in older children. This study of good and poor readers' construction of narratives extends in a preliminary way Vellutino and Scanlon's work in progress on children's speaking abilities as they relate to reading abilities.

Research on the construction of narratives by children offers a range of multifaceted views and findings on how children apply linguistic knowledge in complex ways to serve discourse. Studies of narrative abilities have delineated the intricate features that children develop and coordinate to present settings and characters, relate and advance events, and connect physical and mental states to activities. The content and functions of clauses, the expression of causal connections, the manipulation of

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verb tenses, the use of syntactic and semantic cohesive devices to relate the given to the new, the choice of written language conventions have all been given attention. Further, the relation between the social setting on the quality of children's narratives, such as speaking to a peer in contrast to speaking to an adult, has been taken into account.

To mention only several studies, Peterson and McCabe (1983) examined narratives spontaneously told to experimenters from three analytical points of view, whereas Preece (1987) sketched the functions and forms that children's narratives take in natural conversations. In other studies experimenters have used picture books that relieve the children of memory demands and allow comparability across subjects, but may introduce complications of interpretation. For instance, Berman (1988) concentrated on the development of linguistic resources for relating events through time as part of a long-term cross-linguistic study, whereas Stenning and Michell (1985) traced children's development of the means for explaining the relations between states and events, finding explanations earlier in children than theory would predict.

Other studies concentrate on narratives in relation to reading. In this respect they extend the research tradition seeking relations between productive linguistic abilities and reading ability (e.g., Loban, 1976) and complement the influential work grounded in story grammar that takes recall as a reflection of reading comprehension (e.g., Stein & Glenn, 1979). Geva and Olson (1983) examined first graders' spoken recall of stories told to them with respect to the status of linguistic features characteristic of story-telling in both spoken and written language and the relationship between those features and their progress in reading. Differences emerged between these good and less skilled beginning readers, for instance, in the syntactic integration of content into complex sentences and, furthermore, in retelling a story more explicitly to a naive peer than to the experimenter who already knew the story. In a different vein, Roth and Spekman (1986) compared spontaneous stories told by normally achieving students with those told by learning disabled children. This group was classified as such because apparent "problems in reading, written expression and/or math" (p. 12), in spite of the children's average or above IQs and, it should be noted, normal linguistic abilities in phonology, morphology, and syntax. The stories told by the learning disabled children included fewer propositions, fewer complete episodes, fewer significant statements expressing explanatory relations among the states and events in the stories, and fewer elaborating details.

This study was intended to compare good and poor fourth-grade readers' performance in constructing brief narratives from cartoon strips with respect to overall plot and to the structural elements that give a story coherence and value. Because this approach required that the children interpret the drawings as a basis for each narrative, it did not require either reading or recall. Thus the performances would presumably exemplify the children's abilities to select, organize, express, and relate the significant mental and physical states and events one to another so as to offer a story with a point.

Examining children's construction of spoken narratives has implications for the use of retelling as a means of assessing the comprehension of written texts. Such assessment generally assumes that children are equally capable of expressing their understanding of a story they have read and recalled (e.g., Kalmbach, 1986). So little

Table 1

Measures of IQ and Reading Ability of Reader Groups

Measures		Good	Poor
IQ[a]			
Verbal	*M*	117.64	95.41
	SD	12.07	14.59
Performance	*M*	108.79	100.59
	SD	10.94	8.12
Full Scale	*M*	115.07	97.41
	SD	9.92	10.41
Reading[b]			
Raw Score	*M*	46.79	17.41
	SD	8.75	3.74
Grade Equiv		6.8	2.4

[a] WISC-R. [b] Gilmore Oral Reading Test, accuracy score.

expression has been required of readers when their comprehension is assessed through answers to questions that the productive skills and coordination required by retelling may be taken for granted. Yet there may be wide differences in productive ability among children that need to be recognized in the assessment of comprehension through expressed recall. As Johnston (1983) has pointed out, one can infer a good deal from what is recalled, but little from what is not recalled. A child may lack or fail to select an appropriate schema, may interpret the setting for recall as requiring only a cursory response, or may suffer from deficits in productive linguistic ability. Note that this study does not allow us to separate out these possibilities systematically.

METHOD

Participants in the study were 32 fourth graders from advantaged backgrounds who scored 90 or above on the Performance Scale of the WISC-R (Wechsler, 1974) and had been judged free of gross disorders that might be implicated in reading difficulties. Half were good readers scoring at the 50th percentile or above on the Gilmore Oral Reading Test (Gilmore & Gilmore, 1968); the other half were poor readers scoring at the 10th percentile or below. Table 1 gives the IQ and reading scores for the two groups.

The children were asked to tell the story for each of 14 cartoon strips by Maurice Townsend that depicted characters, states, and events intended to cohere into an ironic story. (For instance, in one sequence, the first frame shows a man with an ax in his hand heading for a turkey; behind him are two agitated children. The second frame shows the man looking at the children crying as he holds the ax over the turkey's head now lying on a stump. The third frame shows the man paused next to the distressed children and facing the turkey, now off the stump. The fourth frame shows the man, smiling children, and the turkey at a table viewing a roast of meat.)

Each child was asked to construct a narrative by an adult experimenter who provided a model narrative in the simple present tense, describing actions and states and expressing inferred causes. As the child told the story for each strip, the adult also had the strip in view. Prompts were nondirective.

Audio recordings of the children's responses were independently transcribed by two researchers and differences resolved by a third.

As a basis for comparing the reader ability groups, the children's narratives were analyzed for number of words per story, adjusted for false starts. They were then examined holistically for the adequacy of the overall plot line, the coherence of the story, the expression of the point, and placed in the following categories, as adapted from Stenning and Michell (1985):

> *Interpretive:* Provides coherent overall plot, showing understanding of the point of the pictured events and explaining the relationships among them and characters' motivations. For example, "See this—the kids' father was gonna It was a um a Thanksgiving 'n they had a big turkey 'n then the kids—it was their pet like, ya know. 'N then like they were crying 'cause he was gonna get killed. 'N then the father looked, ya know, sad 'n then the turkey started crying. 'N then the father decided ta have the turkey for dinner. Ya know at the supper table."
>
> *Descriptive.* Gives frame by frame description of the pictures; may include small inaccuracies. For example, "Father's going to kill the turkey 'n he gets a chick [stick?] 'n then he puts on it the neck 'n the kids scream No no. And then the father didn't do it. Then the turkey and the two kids 'n the father had supper."
>
> *Restricted.* Incomplete, perhaps grossly inaccurate. For example, "The the man chopped down the tree 'n the girls are yelling at him and they're crying and the rooster is yelling' at him and they get they have somethin' [to?] eat." Or, "This girl's screamin' cause he had a ax in his hand and each both girls screamin' girl and boy screamin' cause he thought dey were chopping him and den on Thansgive he chop de turkey . . . and den they ate him."

Agreement on the classification by two independent raters was 81%; differences were resolved by a third rater.

The narratives were also analyzed for the incidence of clauses containing evaluations, that is, utterances that intensify, compare, correlate, and explain the complicating actions in a narrative and so contribute to expressing its point: "why it was told, what the narrative was getting at, or what to think about a person, place, thing, or event" (Peterson & McCabe, 1983, p. 33). Evaluations include exclamations; repetitions; hypotheses, predictions; intentions, purposes, hopes; negatives; explanations (Peterson & McCabe, 1983, p. 32). Further, linguistic features that contribute to the coherence of each narrative were analyzed, including (a) the perspective taken on temporality and its maintenance as expressed through verb tense and aspect, and (b) connectives other than *and, and so,* and additive *so,* including relative pronouns and complement *that* (cf. Stenning & Michell, 1985).

RESULTS

There were no significant differences between the good and poor readers in the length of their narratives ($t(30) = 1.48$, $p < .23$), good readers using a mean of 53.5

Table 2

Reader Ability Groups and Quality of Narratives

Groups	Interpretive	Descriptive	Restricted	Total
Good	54.0	34.8	8.9	97.8%
	(121)	(78)	(20)	(224)
Poor	35.3	34.8	29.9	100.0%
	(79)	(78)	(67)	(224)

($SD = 14.81$) words and poor readers 46.7 ($SD = 11.07$). Significant differences appear, however, in the distribution of the quality of the narratives as interpretive, descriptive, or restricted in relation to the cartoon strips ($\chi^2[2, N = 448] = 93.92$, $p < .001$). As indicated in Table 2, the good readers told narratives that were interpretive in about half of the cases but restricted in about a tenth. The poor readers gave narratives that fell in roughly the same proportions in each of the three categories.

With respect to the incidence of clauses that contained evaluations in relation to the quality of the narratives, a repeated measures ANOVA with ability as the between factor and narrative quality as the within factor, as given in Table 3, yielded no significant differences in the mean number of evaluation clauses between the groups ($F(1, 30) = 1.54$, $p =$ n.s.) However, it showed significant differences for narrative quality ($F(2, 60) = 22.02$, $p < .001$) and a significant ability by narrative quality interaction ($F(2, 60) = 4.23$, $p < .025$).

With respect to other linguistic elements contributing to the quality of the narratives, good readers also differed from poor readers. In the choice of tense and aspect, the good readers favored the present over the past and in a few cases shifted perspective once in the course of a narrative (present 66%; past 28%, shift 6%), whereas the poor readers chose the past and the present about equally often, shifted once in a few cases, and also mixed the tenses in some (past 49%; present 42%; shift 6%; mixed 4%).

With regard to connectives other than *and, and then*, and additive *so*, the good readers chose 23 types of connectives over 175 tokens; the most frequent were *so*, "consequently" (e.g., "the kids didn't want him to so they were crying and crying"); *so*, "so that" (e.g., "he wants to chop its head off so he can pluck it"); *because;* and *but*. The poor readers chose 14 types over 88 tokens, the three most frequent being the same as the good readers, but the fourth being *when*.

Table 3

Mean Evaluative Clauses by Reader Ability Groups and Quality of Narratives

Groups	Interpretive	Descriptive	Restricted
Good	20.4	5.6	1.5
Poor	12.0	6.5	4.5
Mean	16.2	6.1	3.0

DISCUSSION

This study found differences between good and poor readers in the ways that they applied and coordinated their linguistic knowledge to construct narratives in response to cartoon strips. In describing children's holistic linguistic production, the analysis provides information that may play a part in explaining some children's difficulties in becoming fluent readers (Vellutino & Scanlon, 1987). The weakness that poor readers show in constructing narratives may have its source in the same linguistic deficiencies that limit their reading. Further, the difficulty in productive discourse may mediate between reading comprehension and the expression of that comprehension in retellings.

Although the good and poor readers chose about the same number of words for their responses, they differed with respect to expressing the overall plot and outcome of the depicted events. As a group, the good readers more often constructed a clear and sufficiently elaborated narrative to track the shifts in pictured states and events coherently, providing an effective interpretation of the logical relations among them. An equal proportion of good readers and poor readers simply described the activities in each frame adequately, a characteristic found in younger children (Berman, 1988), but nonetheless regarded as sophisticated by Stenning & Michell (1985). The poor readers offered a much higher proportion of restricted, incomplete, even incoherent narratives. The poor readers were not as skilled in marshalling their linguistic resources for the task in hand.

The good and poor readers showed many indications of having control over varying narrative devices. Overall, they did not differ significantly in the incidence of evaluations, those specific linguistic devices used to interpret, emphasize, and attribute cause to the actions in a narrative. Good readers elaborated their interpretative narratives more broadly than the poor readers did; their evaluations dropped sharply in their restricted narratives, suggesting that here the problem was not a linguistic one but perhaps a matter of figuring out the picture or not having an appropriate schema. Poor readers, on the other hand, used evaluations as part of their narrative strategies in a more sustained way across narratives of different quality, suggesting that for them the problem in their restricted narratives may have been more frequently a matter of coordinating linguistic expression.

Two types of linguistic elements were examined to identify possible differences between the reader groups in the ways that they solve the problem of transforming their interpretation of the pictures into language. In the case of the choice and maintenance of temporal perspective, the good readers favored the present over the past, whereas the poor readers chose both equally. In this respect, the good readers were not in accord with the performance of developmentally more mature children in their choice of tense in narratives (Berman, 1988; Stenning & Michell, 1985). It may be that in this situation the good readers followed the form of the adult experimenter, who told the sample narrative in the simple present tense. The poor readers provided a small proportion of narratives in which they failed to sustain the temporal perspective and shifted inappropriately more than once back and forth between present and past.

In the choice of connectives other than *and, and then,* and additive *so* the two groups of readers also showed significant differences. These elements serve to bind the propositions logically, provide orientation, make clear the identity of a character, express purpose, and the like. They are the elements that contribute to linking the states and actions depicted in the pictures. The poor readers did not use as wide a variety of such connectives and did not use the ones that they chose as frequently as the good readers.

These differences in oral production in good and poor readers are relevant to the current interest in assessing reading comprehension by asking children to retell what they have read. As Morrow (1988) has pointed out, novice readers can benefit from instruction in retellings and so come to learn the expectations that teachers have on what constitutes a good retelling. But generally the operating assumption is that children are equally capable and interested in expressing what they have understood. The findings in this study remind us that there are differences on the encoding side of retelling that cannot be simply attributed to poor reading.

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STUDENTS' LEVEL OF COMMITMENT TO THEIR NAIVE CONCEPTIONS AND THEIR CONCEPTUAL CHANGE LEARNING FROM TEXTS

Janice A. Dole
University of Utah

Dale S. Niederhauser
University of Utah

Recent research in science education has provided reading researchers with new and powerful tools to examine how students learn from texts. One such powerful tool is the construct of "conceptual change learning." *Conceptual change learning* describes the kind of learning that occurs when students "accommodate," in the Piagetian sense of restructuring, their existing knowledge or schemata based on new and conflicting information obtained about a given phenomenon (Hewson & Hewson, 1984; Posner, Strike, Hewson, & Gertzog, 1982). We would say that conceptual change learning has occurred when students come to understand that plants make their own food rather than obtaining food from the environment.

Research in science education has extensively documented that conceptual change learning is a very difficult process. Science educators have provided compelling evidence that students are resistant to changing their existing knowledge, sometimes called "naive conceptions," about many of the scientific concepts they study (Clement, 1982; Eaton, Anderson, & Smith, 1984). Textbooks, regular classroom instruction and even good science instruction often fail to bring about conceptual change learning in science (Anderson & Smith, 1987; Eaton, Anderson, & Smith, 1984).

Researchers in reading education have provided evidence to corroborate what science educators have found. Students at many age levels appear to hold onto their naive, but intuitively appealing, science conceptions despite reading texts that contain information that directly contradicts students' conceptions (Alvermann & Hynd, 1989; Alvermann, Smith, & Readence, 1985; Lipson, 1982). When students do read text that conflicts with their naive conceptions, they may assimilate the information into their existing knowledge structures (Alvermann & Hynd, 1987), compartmentalize the new information into separate and distinct knowledge structures (Anderson, 1977; Roth, 1985) or ignore the new information (Eaton, Anderson, & Smith, 1984).

Recently, reading researchers have begun to examine the critical variables that appear to promote conceptual change learning from text. One critical variable appears to be the direct confrontation and refutation of students' naive conceptions. That is, when parts of a text directly address what it is that students are likely to think and then directly refute those naive conceptions, students are more likely to change their conceptions. Several studies (Alvermann & Hynd, 1989; Maria 1988, 1989; Roth, 1985) found that "refutation" texts appear to be effective catalysts for conceptual change learning.

A critical variable that has not been examined sufficiently in either the reading or science education research is the level of students' commitment to their naive conceptions and its effects on learning from text. Marshall (1986) came closest to examining this variable when she identified the "personal need to know" as an important factor in students' willingness to change their naive conceptions. It would make sense intuitively that the higher the level of commitment students have to their naive conceptions, the less likely they are to change them through reading texts—a supposition that research in social psychology supports (Bem, 1970; Rokeach, 1970). We would expect that high levels of commitment to one's naive conceptions would lead one to assimilate new, incoming information so that it is consistent with what is already known. Conversely, students who are unsure of their naive conceptions should be more likely to change them. Lower levels of commitment to one's naive conceptions may allow one to accommodate the new information more easily.

The purpose of this paper is to report data relevant to this hypothesis. In particular, this study addressed the following question: Are students who are sure of their naive conceptions about scientific phenomena less likely to change their conceptions through reading conflicting information in texts than students who are unsure of their naive conceptions? Because we were also interested in the effects of refutation text on students' naive conceptions, we asked an additional question: Are students who are sure of their naive conceptions more likely to change them if they read refutation text than if they read regular science text? This paper reports data obtained as part of a larger study that examined the influence of refutation text on conceptual change learning.

METHOD

Subjects

Subjects in this study included 33 male and 57 female sixth-grade students drawn from classrooms in three comparable urban, public schools in a small western city. We chose upper-middle class neighborhood schools so that a majority of students would have little or no difficulty reading the instructional materials we developed. Reading scores on the Stanford Achievement Test for our subjects ranged from a grade equivalent score of 2.3 to Post High School (PHS), with a mean of 8.8.

Materials

Tests and instructional materials were developed for two science topics, cells and matter. These topics had been used in previous research (Dole & Smith, 1987, 1989) and the tests and materials for this study were developed and revised from these earlier materials.

Pre/posttests. Two tests were created, one for the cells topic and one for the matter topic. Each test was used as both a pretest and posttest. A common format was used for both tests. This included a cover page with general questions about each topic. The cover page was followed by written instructions for students to use what they knew about cells or matter to answer the remaining questions.

Students' level of commitment to their naive conceptions was operationally defined as how sure they were of their responses. After each response on the test the following question was asked: "How sure are you of your answer?" This was followed by a request to circle one of the following: *not sure, somewhat sure, sure,* or *very sure*.

Questions for each topic were modeled after application questions often used by science educators (cf. Anderson & Smith, 1983; Eaton, Anderson, & Smith, 1984). The items required that students apply what they know about the topics to real-world phenomena. For example, one of the questions about cell growth was:

> If the grass on a lawn is mowed, it grows back in just a few days. How does a stalk of grass grow? Try to explain what is going on inside the grass plant that makes it grow.

Similar questions were used for the matter test. An item about the physical changes in matter subtopic was:

> When a volcano erupts, the magma flows out onto the surface of the earth and hardens. Explain how magma hardens.

Scoring templates were created based on students' responses on the pretests. Responses were categorized into five levels. Level 0 was used for blank responses or "don't knows." Level 1 was used for responses that reflected naive conceptions. Level 2 was used for partially accurate responses; level 3 was used for mostly sophisticated responses. Level 4 included complete and scientifically sophisticated responses. For example, the scoring template for the magma question was:

0 = don't know
1 = the magma hardens, cools down, changes from a liquid to a solid
2 = molecules implied or stated directly, particles mentioned
3 = explicit mention of molecules plus 1 of 3 of the following:
speed of molecules
proximity of molecules
attraction of molecules
4 = explicit mention of molecules plus 2 of the 3 above

The experimenters created the scoring templates together, resolved differences through discussion, revised the templates and created rules to follow for ambiguous responses. Interrater reliability was established at 89%.

Treatment materials. Three sets of instructional materials were developed for the two topics: traditional text (TT), considerate text (CT), and refutation text (RT). The traditional text was taken from current fifth-grade science textbooks (Cohen, Del Giorno, Harlan, McCormack, & Staver, 1986; Mallinson, Smallwood, & Valentino, 1984). To develop the CT we restructured the TT to improve coherence, unity, and audience appropriateness (Anderson & Armbruster, 1984). To develop the RT we added refutation statements to the CT. Refutation statements included direct confrontation and refutation of students' naive conceptions. These statements were derived from students' most frequent naive responses on the pretest. For example, pretest responses on the cells unit indicated that many students in our sample thought that food was used only in their stomachs. Therefore, in developing the cells refutation text, we added the refutation statement:

> Some people think that food is used only in people's stomachs, but this is not true.

Both the cells and matter units were divided into sections—4 sections for the cells unit and 4 for the matter unit. Refutation statements were added at the beginning and conclusion of each section.

Procedure

The study was conducted in intact classrooms at three schools. The two experimenters met individually with each teacher to ensure that the topics of cells and matter had not and would not be covered during the 7-week period of the study.

Students were randomly assigned to one of the three text treatments. Packets were prepared for students based on text treatment and topic order. To control for order effects, half the students received the matter tests and materials first, and the other half received the cells tests and materials first. Written scripts were prepared and read to subjects before all tests and treatments to control for the effect of different experimenters.

Pretests were administered to all students at the same time of day over a 3-day period. Three weeks later, the experimenters returned to the schools and administered the text treatments over a 4-day consecutive period. Three weeks after the treatments had been administered, the experimenters returned to the schools and administered the posttests. Posttests, like the pretests and treatments, were administered at the same time of day for all subjects in the study.

Data Analysis

Only items for which students gave naive responses on the pretest were used for data analysis ($n = 760$). Two dependent measures were used in the analysis. The first measure examined students' level of sureness for their naive responses on the pretest. The "sureness" scale was originally designed to provide descriptive information used in the larger study. In this study we collapsed the 4-level scale into a dichotomous measure for statistical analysis.

The second dependent measure used for data analysis examined conceptual change learning from pretest to posttest. Conceptual change learning was operationally defined in a conservative manner. Evidence of conceptual change was scored only when students gave a naive response on the pretest and a scientifically sophisticated response on the posttest. Posttest responses scored at levels 3 and 4 were considered scientifically sophisticated and therefore recorded as "did change." Posttest responses scored at level 1 reflected naive conceptions and therefore were recorded as "did not change." Posttest responses of 2 were removed from the analysis because they did not reflect what we called "scientifically sophisticated responses," even though they may have reflected some increased understanding of the concepts. Posttest responses of 0 indicating "don't know" were removed from the analysis because of their ambiguity.

For the first part of the analysis we aggregated data across all three text types and both topics. We created four categories based on subjects' sureness of their naive conceptions on the pretest and whether they changed to sophisticated responses on the posttest. The four categories were: *not sure/did not change* (NS/DNC), *not sure/did change* (NS/DC), *sure/did not change* (S/DNC), and *sure/did change* (S/DC). We then calculated the numbers of items that fit into each category, and converted these numbers into percentages of total responses. A chi-square analysis was performed to determine if the numbers of items in the categories were significantly different. For the second part of the analysis, we broke down each of the four categories into three groups based on text type. A chi-square analysis was employed on data obtained for each of the four categories to determine if there were significant differences among the three types of texts (TT, CT, and RT).

RESULTS

Findings for the first part of the analysis indicated that, overall, 85% of all naive pretest items were coded on the posttest as did not change (NS/DNC + S/DNC); whereas, only 15% reflected a change to more sophisticated conceptions (NS/DC + S/DC). These data indicate that most students did not change their naive conceptions to scientifically sophisticated ones through reading the treatment materials. Further, students' level of sureness about their naive conceptions did not appear to be a factor in their change. In fact, naive responses about which students were unsure were more likely to be maintained than responses about which students were sure ($p<.05$). Of those naive items for which students were unsure, 46% did not change to scientifically sophisticated responses (NS/DNC). Of those naive items about which students were sure, 39% did not change to scientifically sophisticated responses (S/DNC). Furthermore, of those items about which students were unsure, only 8% reflected a change to scientifically sophisticated responses (NS/DC), and of those items about which students were sure, only 7% reflected a change (S/DC). These findings indicate that students maintained their naive conceptions regardless of whether they were sure of them or not.

In the second part of the analysis we examined students' level of sureness and their change on the posttest depending upon the three types of texts they read. Chi-square analysis revealed two categories where statistically significant differences were found (NS/DNC and S/DC). When students were unsure of their naive conceptions and they read the TT or the CT, they were more likely to maintain their naive conceptions than when they read the RT ($p<.05$). Of those items about which students were unsure and did not make changes to scientifically more sophisticated responses (NS/DNC), 38% of the items came from students who read the TT, compared to 35% from students who read the CT and 27% from students who read the RT.

Conversely, chi-square analysis revealed that of those naive items about which students were sure, they were more likely to change them if they read the RT than if they read the TT or the CT ($p<.01$). Of those items about which students were sure

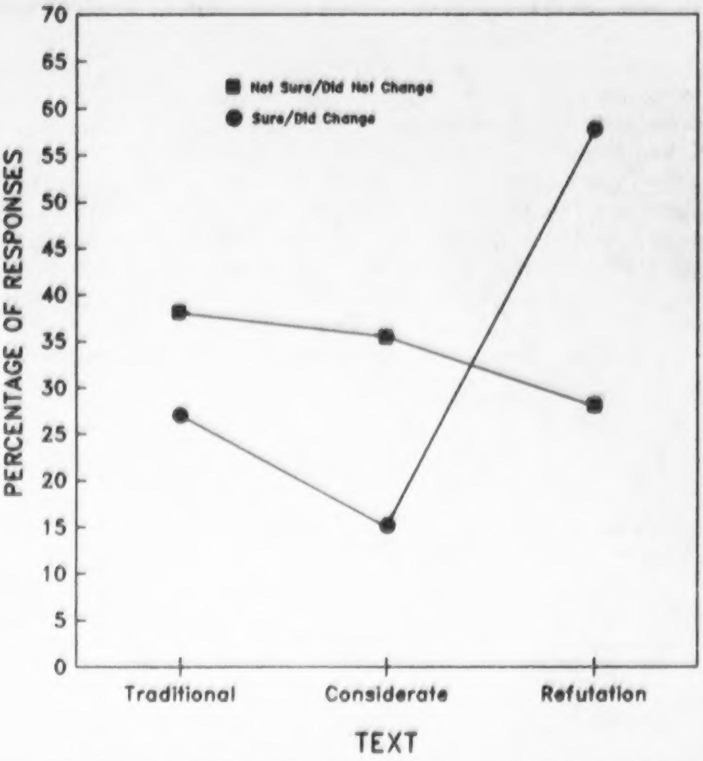

Figure 1. Percentage of NS/DNC and S/DC responses as a function of text type.

and did make changes to scientifically more sophisticated responses (S/DC), 58% of the items came from students who read the RT. Twenty-seven percent of the items came from students who read the TT, and 15% from students who read the CT.

The relationship between the different types of texts students read, students' sureness about their naive conceptions and their change is depicted in Figure 1. Figure 1 shows that when students were unsure about their naive conceptions, they were more likely to maintain those conceptions if they read the TT than if they read the CT or the RT. Additionally, when students were sure about their naive conceptions, they were more likely to change them if they read the RT than the TT or the CT.

DISCUSSION

Students in this study tended to maintain their naive conceptions rather than change them to scientifically sophisticated responses, regardless of whether they were sure or unsure of their naive conceptions. These findings highlight the difficulty of conceptual change learning from texts; further, they do not support our original contention. It would appear that, at least for the two topics used in this study, one's level of sureness or commitment to one's ideas has little effect on one's ability to learn from texts.

Why was students' level of commitment not a factor in their abilities to change their naive conceptions? Perhaps the answer lies in the way we measured "level of commitment." It could be that our measure of "sureness" did not capture the level of students' commitment to their naive conceptions. Perhaps additional instructions or a clearer definition of what is meant by "sure" would have been more effective in determining students' level of commitment.

A more likely explanation may be that students' level of sureness or commitment is not important. Rather, some other affective variable(s) is. For example, a variable that may be more important is Marshall's (1986) "personal need to know." Perhaps the topics we chose were not relevant enough for students to care about, and therefore they had no reason to change their naive conceptions. Perhaps a more important factor is whether students care about the topics, rather than their level of sureness. For example, we certainly can imagine topics—evolution versus creationism—where one cares about the topic to a degree that is more likely to influence one's willingness to change one's conceptions.

Results of the study do point to the importance of refutation text in conceptual change learning from texts, especially when students are sure of their naive conceptions. When students were sure of their naive conceptions and they did change, they most likely read the refutation text. Figure 1 dramatically illustrates this point. Why does refutation text appear to be more successful in promoting conceptual change than TT or CT? Because refutation text directly states and then refutes students' likely naive conceptions, students may be more likely to notice the conflict between their ideas and the more scientifically sophisticated conceptions presented in the text. This may foster the cognitive conflict that some researchers feel is necessary for conceptual change (Hewson & Hewson, 1984; Posner et al., 1982).

A broader, but certainly relevant, question is: Why did students hold onto their naive conceptions so strongly? Many educators would argue (and we would concur) that reading text is not sufficient to bring about conceptual change. Hands-on experiences, guided reading experiences, discussion and experimentation would appear to be additional activities that may be necessary, perhaps even sufficient, for conceptual change. The role that text plays in this process needs to be defined more clearly.

The affective dimension of conceptual change learning from texts requires further investigation. Results of this study suggest that students' level of sureness about their scientific conceptions may not be a critical variable in their conceptual change learning from science text. The results of this study also suggest that there may be no simple and clear relationship between affective variables and cognitive outcomes.

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INTERACTIVE TEACHING AND LEARNING: FACILITATING LEARNING DISABLED STUDENTS' TRANSITION FROM NOVICE TO EXPERT[1]

Margaret A. Gallego
Michigan State University

Grace Z. Duran and David J. Scanlon
University of Arizona

Theory and research have sought to clarify the contributions of various forms of interaction on learning. Learning has been characterized as an active process that requires cognitive and social collaboration (Anderson, 1984; Rumelhart, 1980; Vygotsky, 1978).

On the personal level, the knowledge an individual acquires, accesses from memory, and applies to aid further acquisition all interact. These actions contribute to a continuous process (Rumelhart, 1980). Research has explicated the activation of prior knowledge and idea relationship formulation (Reyes, Gallego, Duran, & Scanlon, 1989) in learning and expression processes.

Socially, interaction also has been found crucial to learning. Students with strong knowledge bases and proficient learning skills perform well on independent learning tasks, beyond their performance when collaborating with peers (Slavin, 1980). However, the nature of these independent tasks is limited. Knowledge application of this sort is restricted to the near transfer type or to close contextual boundedness (Salomon & Perkins, 1989). When taught to collaborate, students of all skill levels learn more and apply their knowledge more elaborately (i.e., using higher abstraction) than when learning independently.

Learning in school is greatly influenced by the type of classroom interaction encouraged in that environment. Appropriate student interaction and input stimulates learning and is beneficial for students of all abilities (Moll & Diaz, 1985).

Interaction between people is the principle mechanism by which learning and development occur (Vygotsky, 1978). Vygotsky described the social context as instrumental in guiding cognitive development. He maintained that ". . . every function in the child's cognitive development appears twice, on two levels. First, on the social, between people as an interpsychological category and later on the personal cognitive level, inside the child, intrapsychologically . . ." (Vygotsky, 1978, p. 57).

During the *inter*psychological phase, the individual interacts with external resources to acquire new information and skills and collaborates directly with external sources, such as teachers, instructional materials and peers (Reyes, Gallego, Duran, & Scanlon, 1989). In the *intra*psychological phase, the student employs the information provided by these external resources to activate the students' prior knowledge and form relationships among what is already known and the new information (Rumelhart, 1980).

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Learning environments rich in external resources provide new information, thus activating students' prior knowledge. In these environments, learning is best facilitated when students are allowed to interact with each other (Au, 1980; Palinscar & Brown, 1984; Slavin, 1980). Such learning interactions have been described as a partnership between novices and experts (Vygotsky, 1978).

A *novice* is an individual with limited knowledge who learns from a more informed *expert*. Through this alliance novices jointly experience activities with experts, and gradually come to perform the same functions. First, an expert guides the novice through the activity, performing most of the cognitive work. Initially the novice participates as spectator and gradually assumes more responsibility. In time, both expert and novice come to share the cognitive work. Once competence grows, the novice is able to assume the expert role.

Experts employ both cognitive and social skills for learning. Successful learning requires a double or split mental focus. Expert learners simultaneously focus on the content and monitor their mental operations used for productive learning (Locke, 1975). One important cognitive skill, self-interrogation, is used for identifying the relationship between one's prior knowledge and curricular content (Rumelhart, 1980). Expert learners apply and integrate this content with their prior knowledge. The process is triggered when an expectation about content has not been confirmed or when unfamiliar concepts are encountered frequently enough to impede full understanding (Smith, 1975). The expert reacts to the comprehension collapse by slowing down the rate of processing and allocating time and effort to achieve understanding. Experts negotiate meaning and expend their knowledge by using multiple resources in their environment, including other persons. Student experts employ social skills to effectively interact with their teachers and peers in ways that draw upon others' knowledge.

Learning in school contexts becomes problematic for learning disabled (LD) students because they often lack appropriate social interaction skills (Bryan, Wheeler, Felcan, & Henek, 1976) and are often unaware of their comprehension failures (Torgeson & Licht, 1983). Specifically, LD students lack awareness of: (a) their limitations as problem solvers, (b) compensatory strategies to overcome such limitations, and (c) self-management techniques for monitoring and checking their own progress (Brown, 1982). These poor learner behaviors may lead to their characterization as school novices.

Although LD students do not typically involve themselves in self-monitoring activities and other efficient strategies when engaged in learning, research has documented that they are capable of activating these strategies when cued to do so (Bos & Filip, 1984; Wong, 1980).

In this study, students were cued to overtly exercise the cognitive processes of knowledge assimilation and accommodation identified in Schema Theory (Anderson, 1984; Rumelhart, 1980). Students were encouraged to activate prior knowledge by sharing those ideas with others and to form relationships among ideas. In this process, LD students progressed toward becoming experts.

INTERACTIVE SEMANTIC MAPPING

Our aim was to develop a context which facilitated interactive dialogue for learning social studies content. Crucial to this novice/expert partnership is the role of dialogue, a primary means by which support is provided and adjusted. This interactive dialogue serves to challenge the novice and enables the student to participate in the learning process before becoming an expert.

This study examined the expansion of students' knowledge in two ways: (a) the understanding of the procedures of participating in the semantic mapping strategy across time, and (b) the comprehension of content area concepts.

Students in this study applied a metascript (Gallimore & Tharp, 1983) to guide their verbal interaction. A *metascript* consists of intermediate level verbal prompts that are more universal than specific routines (e.g. "Does this make sense?"), but more powerful than general self-regulatory skills such as self-interrogation. Intermediate level prompts advocate responsive interactions rather than specific level-prescribed formulaic statements.

The intermediate level prompts used in this study included seven components of interactive teaching and learning (Bos & Anders, 1987; Gallego 1989; Gallego & Anders, 1988). Students were encouraged to: (a) activate prior knowledge by prompting each other to recall related past experiences, (b) tie new knowledge to old by connecting their related prior knowledge and experience to each other and to new information provided by their peers or by the text, (c) predict relationships by hypothesizing how their ideas and those of the text relate and prompt each other to identify alternatives, (d) use cooperative knowledge sharing by using others in their group as resources for information and consensus building, (e) teach concepts to their peers in relation to the organization of the semantic map or the passage, (f) justify relationships between and among concepts by explaining their responses, and (g) confirm understanding by questioning their understanding to resolve misconceptions.

These interactive learning components were embedded in the instructional context of pre-, during, and post-readings of the text and in discussion for the purpose of understanding social studies concepts. The teacher initially modeled these components as instructional prompts to the student group. As students acquired the components, they employed them as learning prompts for each other. The interactive learning strategy assisted in obtaining two desired goals: (a) students' collaborative comprehension monitoring, and (b) students' comprehension of text concepts.

METHOD

Subjects

Subjects were 6 bilingual 11- and 12-year-old girls identified as LD according to school district criteria. The school district criteria used for identifying students as

LD included (a) a severe discrepancy between intellectual functioning and academic achievement and (b) one or more deficits in cognitive processing as determined by district pupil evaluation teams. Subjects with a standard score of 85 or higher on the Wechsler Intelligence Scale for Children Revised (WISC-R; Wechsler, 1974) and with a disability in reading were selected for this study. Subjects' reading grade scores on an achievement measure ranged from *2.3* to *3.1*.

These students were a representative subsample of subjects who participated in a larger intervention study for the improvement of content area comprehension. The teacher's role changed across time from modeling the strategy, to facilitating, to coaching the students on the use of the strategy.

Procedure

The students learned and rehearsed semantic mapping, an interactive strategy (Scanlon, Duran, Reyes, & Gallego, 1990; Stahl & Vancil, 1986) using five nonconsecutive related passages from a social studies text over a 5-week period. A single chapter was studied over 3 to 4 days during each week. Students were engaged in the activity for approximately 40 minutes a day. Each week students participated in four lesson phases: (a) brainstorm, (b) clue list, (c) relationship map construction, and (d) confirm understanding.

Students began the lesson by brainstorming concepts related to a content area passage. The title of the chapter was presented as the central idea for the brainstorm. As a guide for brainstorming, students were instructed to think of personal experiences and previous knowledge related to the topic. Ideas offered by students were deliberated for their relevancy by the group and accepted if appropriate. Secondly, students generated a clue list by skimming the text to identify key vocabulary and concepts in the chapter. The sources for clues included pictures, titles, subheadings, and words in bold print. Thirdly, students made predictions regarding the relationships among the concepts generated in the brainstorm and those presented in the text, and prompted each other to justify those predictions. Upon reaching consensus concerning the proposed relationships, students organized and displayed their predicted relationships among concepts by creating a semantic map. During the fourth phase, students read the passage to confirm their hypothesized relationships, and then conferred with each other to review and possibly change their map accordingly.

Data Sources

Three data sources were collected and analyzed: (a) videotaped classroom interactions recorded during the implementation of the semantic mapping activity, (b) multiple-choice comprehension quizzes collected at the conclusion of weekly lessons, and (c) student-written summaries, also collected weekly.

The 1st, 3rd, and 5th weeks of the intervention were videotaped. Three bilingual coders observed 15-minute segments of each of the four phases of each lesson. Each coder was assigned 2 students to observe. Coders recorded all verbal contributions made by their assigned students. Students' verbal contributions were coded according to interaction using four categories: (a) interactive, (b) noninteractive, (c) off task, and (d) procedural. During training sessions coders collectively observed 2 target subjects at 2 separate times for 20 minutes each (5 minutes per lesson phase). After each lesson phase, coders compared their coding. When coding was not in agreement, coders discussed their decisions until concensus was reached. An interrater reliability of 86% was attained.

Student utterances coded as interactive reflected statements associated with the seven interactive components (Bos & Anders, 1987; Gallego, 1989). Noninteractive utterances consisted of on-task statements that reflected a directive and/or noncollaborative approach. Statements coded as off-task were utterances that did not pertain to the procedures nor to the lesson content. Procedural utterances reflected statements which referred to the management and set up of the lesson.

Two comprehension measures were used to document students' content understanding. Multiple-choice comprehension quizzes were administered weekly and scored for the percentage of correct responses. Test items included conceptual items, requiring students to draw relationships among concepts, and vocabulary items, requiring definitional knowledge. A similar but longer multiple-choice comprehension test was administered at the conclusion of the 5th week and again as a follow-up measure 3 weeks later.

A second comprehension measure was also collected each week. Students were asked to generate a written summary of the lessons' content. Students generated written summaries individually. Researchers encouraged students to write all they knew about the topic and assured them that their ideas, not writing mechanics, were of primary importance. The purpose of the writings was to identify student knowledge not identified by the multiple-choice quiz. The written summaries were scored as part of the larger study. Six coders were trained on the procedures of holistic scoring using a 10-point scale (Irwin & Mitchell, 1983). During training each coder scored the same 10 papers. When ratings were not in close agreement, coders discussed their reasons for assigning a specific score and reached consensus. Reliability was established at 92% agreement.

RESULTS

Student Contributions Across Time

Contributions generated by the total group during week 1, week 3, and week 5 were examined. Trend analysis results indicated a significant increase in the amount of student contributions made across the 5-week period $F(2, 14; 9.7, p<.001)$ (see Table 1). Tukey HSD post hoc tests were employed as pair-wise comparisons on the means to identify the significance of each time interval. Results indicated that there was a significant difference between mean scores collected during weeks 1 and 3 ($p<.05$). Results for the mean difference for the verbal contributions made during weeks 3 and 5 were not significant.

Teacher Contributions Across Time

Although teacher contributions varied slightly from week to week, trend analysis results document these fluctuations to be nonsignificant. Furthermore, the total amount

Table 1

Trend Analysis for the Total Student Contributions Across Weeks 1, 3, and 5

	Total Student Contributions	
Intervention Week	*M*	*SD*
1	6.4	5.6
3	21.5	4.5
5	23.8	9.6

of teacher contributions across the weeks was not correlated to the written summaries' holistic ratings nor to the comprehension quiz scores.

Written Summaries Across Time

Holistic scores assigned to students' written summaries were examined. Trend analysis results indicated a positive trend for summaries across the 5-week period $F(2, 14; 3.17, p<.05)$ (see Table 2). No significant trend was indicated between the holistic scores recorded for week 5 and those recorded for the follow up 3 weeks later.

Student Contributions and Comprehension Measures

Correlational analysis revealed a significant positive relationship between total group student contributions and the holistic ratings ($r=.68$, $p<.003$). However, the total amount of student interaction was not significantly correlated with the comprehension quiz scores ($r=.06$).

Proportional data provided further information regarding the nature of the group interaction. In addition to students' increased participation in discussion reflected in the number of contributions made over the 5-week period, the quality of these contributions also improved. The percentage of use of interactive, noninteractive, procedural, and off-task utterances revealed a consistent use of interactive statements and an increased use of procedural statements over the 5-week period. A decrease in off-task contributions was also documented across the intervention weeks (see Table 3).

DISCUSSION

We consider the intervention a success in aiding students' progression from novice status toward expert status for several reasons. Collectively, data revealed that students progressed in two ways. First, students' procedural and conditional knowledge (Cross & Paris, 1988) for strategy implementation improved, that is, students demonstrated knowledge in how and when to use the strategy. The improvement of strategy implementation was documented by the quality and quantity of the dialogue generated among members of the group. Increased quality was reflected by the students' task appropriate dialogue employing interactive utterances. The strategy was also successful in instilling a collaborative environment in which students were free to share

Table 2

Trend Analysis for Holistic Ratings on Written Summaries Across Weeks 1, 3, and 5

	Holistic Ratings	
Intervention Week	*M*	*SD*
1	.58	.08
3	.68	.09
5	.76	.16

Note. Percentage scale.

knowledge and use each other as information resources documented by the increased quantity of participation in the group discussions.

Secondly, students increased their declarative knowledge (Cross & Paris, 1988) of the social studies content. The holistic scores awarded to students' written summaries indicated a qualitative increase in their ability to express their understanding of text concepts over time. Conceptual understanding was largely maintained through the administration of the written summary follow-up measure (only one student's performance indicated a decrease between posttest and follow-up).

Through interaction with a supportive teacher and peers, the students were led to perform at an increasingly more mature cognitive and social level. These opportunities enabled students to effectively respond to and challenge each other. However, the teacher did not merely instruct the students and then leave them to work unaided. The teacher served to advise and model the appropriate strategies. During week 1 the teacher participated in interactions in which the students and teacher were mutually responsible for getting the task done. During the following weeks the students adopted more of the interaction initially undertaken by the teacher. The teacher then acted less as a model and more like a coach by interjecting praise, encouragement, and some management.

This study emphasized student participation in the learning activities by providing opportunities to use the skills being instructed (Gallimore & Tharp, 1983), evaluating student performance, and providing information for the readjustment of instructional support (Palinscar & Brown, 1984).

The interactive components encouraged the students to respond even if their level

Table 3

Percentage of Use of Interactive, Noninteractive, Procedural, and Off-task Contributions Across Weeks 1, 3, and 5

	Types of Interaction				
Weeks	Interactive	Noninteractive	Procedural	Off-Task	Raw Total
1	44.5%	0%	18.5%	36.0%	146
3	39.0%	2.0%	34.0%	25.0%	366
5	34.0%	0.1%	43.0%	19.0%	304

was not yet that of an expert. Students' responses granted the teacher opportunities to gauge their competence and render appropriate feedback. In this way interactive learning provided an occasion for students to make overt their level of competence, a level that in traditional instruction is often masked by students' tendency not to respond until they approach full competence. Full competency is seldom achieved by LD students, according to both their self-perception and their teachers' perceptions of them (Myklebust, Boshes, Olson, & Cole, 1969).

The gradual shift of responsibility for conducting the lesson from teacher to students may be the key to successful internalization and generalization of interactive learning. The opportunity for verbal expression provided in this study empowered students by validating student ideas as viable and important. Interactive learning aided in changing the students' self-perception from school novice to experts. These features may be especially worthwhile for LD students whom we found to benefit from the collaboration and support of others.

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THE EFFECTS OF *PLAE* UPON STUDENTS' TEST PERFORMANCE AND METACOGNITIVE AWARENESS

Sherrie L. Nist and Michele L. Simpson
University of Georgia

Past research has provided considerable information about the differences between efficient and inefficient readers and the characteristics of effective learning strategies. However, these studies have not fully addressed the more critical issue of training students to have executive control over these strategies in order to become independent learners (Weinstein, 1988). To become autonomous learners, students must be able to plan, implement, monitor, evaluate, and if needed, modify a plan of action with a variety of tasks and texts (Kluwe, 1987). Knowing that even college students often lack the ability to monitor and control their learning (Anderson & Armbruster, 1984; Maki & Berry, 1984; Pressley, Snyder, Levin, Murray, & Ghatala, 1987), we operationalized these executive control processes into a heuristic entitled PLAE [Preplan, List, Activate, and Evaluate] (Simpson & Nist, 1984).

Based on tetrahedral models of learning (Bransford, 1979; Jenkins, 1979), PLAE focuses on five student-directed operations necessary for strategy control and regulation. Students must (a) establish goals, allocate resources (i.e., select strategies, allot time), and make a plan of action that incorporates the appropriate strategies and distributes practice over time; (b) have a repertoire of strategies for the numerous tasks and texts they will encounter because there is no one superior or generic method of study; (c) select the most appropriate strategies based on the characteristics of text, task, and personal learning preferences; (d) activate and monitor a plan of action and make appropriate changes, when necessary; and (e) evaluate their plan's success or failure in order to plan for future situations.

PLAE is a recursive model that involves students in four stages of test preparation. In Stage 1, *P*replanning, students find out information about the test and set performance goals by answering a series of questions. In Stage 2, *L*isting, students list the most appropriate strategies and construct a task-specific study plan that outlines their specific goal for each study session, the amount of time they predict it will take to reach their goal, and where/when they will study. In Stage 3, *A*ctivating, students implement and monitor the plan's effectiveness and make adjustments if their plans are not working. Stage 4, *E*valuation, occurs after students have received their test scores. Students evaluate their performance by diagnosing errors and looking for patterns of strengths and weaknesses. This information is then used as they plan for subsequent exams.

Two previous studies have been conducted to validate PLAE's effectiveness. In the first study, the planning variable, as operationalized by PLAE, was found to be more predictive of and accounted for a greater amount of the variance in test performance than did encoding, rehearsal, or word knowledge (Nist, Simpson, Olejnik, & Mealey, 1989). A second study focused solely on the possible role PLAE might have in improving both test performance and metacognitive abilities. In this study we found that over a 5-week period, students' test scores, as well as both on-line and global metacognitive abilities, improved (Nist & Simpson, 1989). However, past research has yet to compare students who were trained to use PLAE with those who were trained to use more traditional methods of management such as scheduling and prioritizing. Thus, the present study sought to answer the following questions: (a) Would students trained to use PLAE perform significantly better on four content area exams than an alternative group trained to use traditional time management skills? (b) Would students trained to use PLAE significantly improve their abilities to globally predict test scores over an alternative group trained to use traditional time management skills? (c) Would students trained to use PLAE significantly improve their abilities to engage in on-line predictions over an alternative group trained to use traditional time-management skills?

METHOD

Subjects

The subjects were 56 at-risk students (45% male; 90% Caucasian) enrolled in four separate sections of an upper-level study strategies course at a major southern university. Students were mandatorily enrolled in this course as a prerequisite to taking regular core courses. These students could decode words and comprehend brief passages as measured by their scores on a state mandated basic skill exam. However, they had difficulty understanding and remembering extended pieces of text as measured by a departmental exam over a college-level psychology chapter excerpt. High school grade point averages and SATV scores were equivalent for both groups (PLAE, hsgpa = 2.54, SATV = 400; TM, hsgpa = 2.56, SATV = 407, $p > .10$ in both cases). In addition, they had a mean university predicted grade point average of 1.78 on a 4-point scale. Two sections were randomly assigned to the PLAE condition (PLAE, $n = 26$), and the other two sections served as the Time Management condition (TM, $n = 29$).

Procedure

In Phase I of the study, subjects in both groups received intensive, direct instruction on a variety of study strategies. (Each of the two researchers taught one PLAE and one TM group to control for teacher effects.) During this 5-week period, all subjects learned how to activate prior knowledge, survey and annotate text, and use a variety of recitation strategies. The overall training differed only in that the experimental groups received instruction on PLAE, and the alternative treatment groups received instruction on more traditional time management techniques. During Phase

II of the study, the 5-week data collection period which followed Phase I, all subjects constructed study plans or time management schedules as part of their preparation for each of four full-length content area chapter exams.

PLAE group. The initial training took place over a 6-day period. On Day 1, the rationale for PLAE was discussed and procedures and examples of PLAE were provided. PLAE subjects were then assigned to construct a plan for the first exam and bring it to class the following day. On Day 2 the attributes of an effective plan were discussed and students met in pairs with a checklist which described plan strengths and weaknesses. On Days 3 and 4, plan monitoring and fix-up strategies were discussed. Subjects took the exam on the fifth day. On Day 6 all exams were returned so that subjects could diagnostically evaluate their performance. With the exception of discussing the PLAE model in great detail, this same cycle was followed for each of the remaining three exams.

Time management group. The alternative treatment group also went through an initial 6-day training cycle that focused on time management principles. For each exam they constructed a weekly schedule and a daily "To Do" list. On Day 1, the rationale and steps for constructing schedules and lists were discussed. We distributed examples and assigned students to create schedules and lists for the following day. On Day 2 the attributes of effective schedules/lists were discussed and students met in pairs with a checklist to evaluate. As with PLAE subjects, the TM group spent days 3 and 4 in monitoring and fix-up strategies. On Day 5 they also took the exam. On Day 6, TM subjects were provided with the correct answer for each exam item and were permitted to ask questions on confusing items.

Data Collection

Four exams based on four full-length content area chapters from college-level texts (communications, political science, biology, and psychology) were constructed, each containing 40–45 objective items and a balance of memory and higher level questions. The reliabilities on the tests ranged from .68 to .87 and there were no statistically significant differences between mean item difficulties (.59, .64, .66, and .65 respectively, $F = .871$). Mean item difficulties were determined by computing the proportion of students getting each item correct and then averaging these proportions across each test.

For each test, all subjects engaged in two key tasks as ways to measure both global and on-line metacognition. First, as they took the exam, they predicted whether they thought they got each objective item correct or incorrect. Students were instructed to put a "1" if they were sure that it was correct and a "2" if they had reasonable doubt about the correctness of their answer. From these responses, the mean proportion of correct predictions (i.e., they predicted that they got the item correct and it was correct, or they predicted that they got the item incorrect and it was incorrect) was computed for each of the four exams for both groups. In addition, after completing each of the four tests, subjects also engaged in global predictions by predicting the overall grade they thought they would receive.

Table 1

Mean Test Scores (and Standard Deviations) for PLAE and TM

	Tests			
	1	2	3	4
PLAE	80.88	75.88	71.00	85.77
	(7.51)	(9.16)	(7.07)	(4.93)
TM	75.25	72.00	68.89	79.14
	(9.16)	(14.82)	(8.36)	(8.99)

RESULTS

The results of this study indicated several significant findings. First, a repeated measures analysis revealed a main effect for group ($F_{1,52}=5.79$, $p<.0197$) and no interaction between test and group ($F_{3,156}=1.11$, $p<.3481$). As shown by the mean scores (and standard deviations) in Table 1, PLAE subjects scored higher than TM subjects on all exams.

Second, a chi-square analysis indicated that statistically significant changes in favor of the PLAE condition occurred between T1 and T3 ($\chi^2=7.57$, $p<.01$), T1 and T4 ($\chi^2=16.149$, $p<.001$), T2 and T3 ($\chi^2=12.20$, $p<.001$), and T3 and T4 ($\chi^2=25.57$, $p<.001$) in subjects' ability to globally predict test scores. No statistical changes occurred between the groups on T1 versus T2 or T2 versus T3 ($\chi^2=1.63$ and 2.12 respectively).

Table 2 indicates the frequency of under, exact, and over global predictions for each test for the two groups. The Cochran's Q Test, used to determine if there were overall changes in subjects' abilities to globally predict their grades, was statistically significant, $\chi^2=7.81$, $p<.05$. Stewart's extension of McNemar's test (Stewart, 1955), used to determine the nature of these changes, indicated that subjects in the PLAE group changed from making overpredictions to making exact predictions by the time they took T4. Such change did not occur in the TM group. As shown in Table 3, the only significant change that occurred in TM was between T1 and T3 when there was an increase in overpredictions.

Table 2

Frequency of Under, Over, and Exact Global Predictions for PLAE and TM

	PLAE			TM		
	Under	Over	Exact	Under	Over	Exact
Test 1	3	12	11	2	15	12
Test 2	4	11	11	4	13	12
Test 3	3	19	4	9	12	8
Test 4	2	1	23	8	12	9

Table 3

Value of Contrasts for Global Predictions for PLAE and TM

		PLAE			TM	
	Under	Over	Exact	Under	Over	Exact
T1 w T2	.039	.423	.038	−.069	−.034	.103
T1 w T3	.000	.269	−.269	−.214	.107*	.107
T1 w T4	.077	−.500*	.423*	−.207	.138	.069
T2 w T3	.038	.269*	−.308*	.071	.143	−.072
T2 w T4	.077	−.500*	.423*	−.138	.172	−.034
T3 w T4	.039	−.769*	.730*	−.036	−.036	.071

Note. T = Test.
*Statistical significance, $p < .05$.

Means (and standard deviations) for mean on-line predictions are included in Table 4. There was a statistically significant interaction between group and on-line prediction, $F_{3,153} = 7.46$, $p < .0002$. Simple effects for differences between groups at each level of on-line prediction indicated no statistical differences between the groups for T1 and T2 ($p < .634$ and .149, respectively). However, statistically significant differences, favoring the PLAE subjects, were found for T3 and T4 ($F = 9.50$, $p < .003$, and $F = 26.80$, $p < .0001$, respectively). These results indicated that abilities to predict on-line accurately were dependent on the test subjects took.

DISCUSSION AND CONCLUSIONS

The results of this study indicated that subjects trained in PLAE performed statistically better over the four content area exams. It could be argued that the significance found in this study was a result of test order rather than an improvement in strategy control and regulation. However, the fact that there were no statistically significant differences in the mean item difficulty levels of the tests weakens this argument. In addition, scores for both groups on T1, the most difficult of the four tests (.59), were

Table 4

Mean Proportions of Correct On-Line Predictions (and Standard Deviations) for PLAE and TM

	Tests			
	1	2	3	4
PLAE	76.19 (8.00)	74.85 (8.43)	74.00 (5.24)	85.42 (4.64)
TM	77.10 (6.94)	70.86 (11.31)	69.29 (6.11)	74.26 (10.01)

higher than were the scores for T2 and T3. Furthermore, T3 (.66), the easiest of the four tests, had the lowest scores for both groups.

The statistically significant difference between PLAE and TM over the four exams gains practical significance when examining the letter grade differential across the four tests. Specifically, for two of the exams (T1 and T4), the PLAE group received *B*s, and the TM group received *C*s. On T3 PLAE subjects received *C* grades, and the TM subjects received *D*s. On T2 there was a half-grade difference between the two groups. At first glance one letter grade or one half-grade difference between the groups might seem inconsequential. However, when it is noted that these high-risk students were predicted to perform at a 1.78 or *D*+ level in university course work, a half or whole grade beyond a *D*+ would make a difference between probation and staying in school. Given the fact that most college freshmen have not developed executive control over their independent learning, more opportunities for vertical transformations with PLAE would probably make these initial effects even more pronounced.

The results of this study also indicated that subjects trained in PLAE became statistically more aware metacognitively as indicated by both global and on-line predictions. It should be noted that these differences between the groups became more pronounced over time. As noted in Table 4, the PLAE Group increased their on-line predictive ability from 76% on the first exam to 85% on the fourth exam. However, the TM group declined in their ability from 77% on the first exam to 75% on the last exam.

In addition, the interaction between group and prediction indicated that the two groups predicted on-line with equal degrees of accuracy for the first two tests. But by the last two exams, those in the PLAE condition statistically improved metacognitively, whereas those in TM declined or remained stagnate. Hence, had this study ended after the first data collection point, the statistically significant differences favoring PLAE would not have been noted since both groups were initially equivalent in their abilities to predict their on-line performance.

Not only did PLAE subjects improve in their abilities to predict on-line, but they also statistically improved in their global predictions. It is interesting to note, however, that no dramatic change was evident for the PLAE group until T4, again indicating the importance of giving students sufficient time to learn to control and regulate new strategies.

PLAE may have facilitated metacognitive performances because subjects had to specifically define each of the four tasks, select appropriate strategies, construct a task-specific plan of action, monitor and evaluate that plan of action, thus encouraging strategy control and regulation. In contrast, TM subjects, with a knowledge of the same Phase I strategies, appeared not to be able to control, regulate, and monitor those strategies in an appropriate fashion to the four different tasks and texts. The TM subjects did not perform as well on the tests, nor did they grow in their abilities to metacognitively assess their global and on-line performances.

These findings have implications for research as well as for professionals helping students to become more autonomous learners. Long-term training seems particularly important when conducting research on at-risk students who need powerful interventions coupled with lengthy training across a variety of tasks and texts.

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CORRECTING MISCONCEPTIONS: EFFECT OF TYPE OF TEXT

Katherine Maria
College of New Rochelle

Joanne Mons Johnson
Scarsdale School District

A number of studies (e.g., Alvermann & Hynd, 1989; Dole, 1989; Maria, 1988) have found that considerate texts and refutation texts (texts that refer directly to an existing misconception and then correct it) promote learning of scientific information that contradicts children's and adults' misconceptions more than the inconsiderate texts commonly found in science textbooks. For example, Maria (1988) found that fifth-grade students who read an experimenter-constructed considerate refutation text learned the scientific explanation for seasonal change better than those who read an inconsiderate text from a fifth-grade science book. The considerate text discussed and directly refuted the common misconception that summer is warmer because the earth is closer to the sun; the inconsiderate text made no reference to the misconception.

The main purpose of the present study was to extend this work on the role of text in the correction of misconceptions by investigating whether presenting scientific information about seasonal change in a narrative, which is also a refutation text, would promote learning more than presenting it in an expository text, which is either a considerate refutation text or an inconsiderate nonrefutation text. Narratives whose primary purpose is to present content area information are common in tradebooks on science topics (e.g., Cole, 1986) and in articles in children's science magazines (e.g., *Ranger Rick* published by the National Wildlife Federation). This type of text is really a hybrid of narrative and expository text, therefore, we are referring to it as *soft expository text*, a term suggested by S. Valencia (personal communication, December 2, 1988).

There are a number of factors which suggest that soft expository text may be easier for children to understand than regular expository text. In general, even considerate expository texts are more difficult for children to understand than narrative texts. Very few children are aware of expository text structures (Englert & Hiebert, 1984; Richgels, McGee, Lomax, & Sheard, 1987). Since children are not aware of these structures, they cannot use them as an aid to comprehension and learning. On the other hand, even young children seem to be aware of narrative structures and are able to use this awareness as an aid to comprehension of stories (Mandler & Johnson, 1977; Stein & Glenn, 1979). Freedle and Hale (1979) found that when young children used narrative structure in organizing their recalls of expository texts, they had better recalls. They suggested that one might create a schema for expository prose by transfer-ring students' already existing narrative schema to expository text. Pincus, Geller and Stover (1986) reported one way of promoting this type of transfer with middle school children. Using magazine articles that were not organized chronologically, they chronologically numbered events in the article and provided frames to help the children organize information into a summary with a narrative structure. When given this support, children were better able to identify important events and summarize the article rather than simply copying information from it. Soft expository text structures may be another way of facilitating the transfer from narrative to expository text schemata since this text type includes elements of both types of structure.

Interest is another factor that may make stories easier for children to comprehend than expository text. Stories seem to be inherently more interesting than expository material. Many authors of content area textbooks have attempted to increase children's interest in these texts by inserting narrative anecdotes at critical points (Hidi & Baird, 1988). However, a number of studies (Garner, Gillingham, & White, 1988; Hidi & Baird, 1988) have found that when narrative anecdotes are inserted into exposition, children remember the interesting narrative information which is unimportant but not the important content area information. Since the effect of soft expository text on learning of science information, specifically, had not been previously investigated, it was not clear in such cases whether children might focus on unimportant story details and fail to learn the science information embedded in the story.

However, the focus of this study was not on structure alone. As Horowitz & Samuels (1987) point out, since structure and content cannot be separated, one should seek an effective match of content and structure. Science content is often difficult for children to learn because it is not part of their everyday experiences. Their experiences may support a misconception rather than a scientific explanation; for example, a child who experiences getting warmer by getting closer to a source of heat (a fireplace or a radiator) may use that experience to reason that it is warmer in summer because the earth is closer to the sun. A refutation text that directly refutes this misconception may create cognitive dissonance, but children often cope with this dissonance by considering real life and scientific knowledge as separate and unrelated (Dole & Smith, 1987). The decontextualized and impersonal way in which science information is presented even in a considerate refutation text may foster this separation of scientific knowledge and experience. Presenting science information that contradicts children's misconceptions in a story about children who confront the contradiction in attempting to answer a real life question may help to overcome this separation. The soft expository text in this study focused on the problem experienced by Katie, a little girl who had moved from Australia to New York. Katie realizes that explaining seasonal change by saying that the earth is closer to the sun in summer and farther away in winter can't be true if it is summer in July in New York and winter in July in Australia. She convinces her friends to seek another explanation which will resolve this contradiction. Thus the correction of the misconception in this text was the focus of the story.

In addition to considering the effect of different types of texts, a second purpose of this study was to determine whether, before reading the texts, the percent of seventh graders who had the misconceptions about the topic of seasonal change would be smaller than the percent of fifth graders with the misconception. Another question was whether those seventh graders who did have misconceptions would correct them more easily than fifth graders. Piagetian theory suggests that seventh graders who are more likely to have reached the stage of abstract operations are better able to correct their misconceptions about abstract scientific content than fifth graders who may still be at a concrete operational stage. On the other hand, a large body of research has revealed that contrary to Piagetian theory, many adults as well as children hold scientific misconceptions (Linn, 1986). A final question was whether fifth and seventh graders would be affected differently by the different types of texts, that is, would soft expository text be more facilitative for both fifth and seventh graders, or would seventh graders who have more experience with regular expository text find the latter type as helpful in correcting their misconceptions as the soft expository text.

METHOD

Subjects

All seventh-grade students in the gifted and talented programs in two large urban school systems ($N = 123$) and all fifth-grade students in the gifted and talented programs of one of these school systems ($N = 129$) were tested to determine whether they had a common misconception about seasonal change, that is, that it is hotter in summer because the earth is closer to the sun and colder in winter because the earth is farther away from the sun. Since standardized reading scores overall were low in these systems, children were chosen from gifted programs to reduce the incidence of decoding problems.

In both school systems children were chosen for the gifted and talented program on the basis of teacher recommendation and performance on an IQ test and a test of achievement. However, in both systems cut off points varied. Total reading percentile scores on the Degrees of Reading Power (DRP) Reading Test for New York State Elementary Schools, Grade 6 (Touchstone Applied Science Associates, 1988) for the seventh graders who had this misconception ranged from 49 to 99. Total reading percentile scores on the Metropolitan Achievement Test 6, Elementary Form M (Balow, Hogan, Farr, & Prescott, 1985) of the fifth graders who had the misconception ranged from 28 to 99. The children were from diverse ethnic backgrounds and from lower and middle class socioeconomic levels.

Unlike subjects in the Maria (1988) study, these children had already received science instruction related to the scientific reasons for seasonal change. This topic was part of the fifth-grade curriculum so that the fifth graders had received this instruction 4 months before being pretested, whereas the seventh graders in the same school had studied the topic 2 years before with the same teacher. This teacher's instruction provided concrete experiences for the children; for example, they used balls and flashlights to demonstrate how the tilt of the ball affected the slant of light rays. However, he did not make any reference to the targeted misconception in his instruction, and after instruction 64% ($N = 82$) of the fifth graders had the misconception. In the same school 97 seventh graders were tested for the misconception. Since only 42% of them ($N = 41$) had the misconception, it was necessary to test seventh graders from the gifted and talented program of the other school district to ensure sufficient subjects in each of the groups. Eighteen seventh graders were tested in this second program and 50% had the misconception ($N=9$). They too had received science instruction on the topic of seasonal change in fifth grade but with a different teacher.

Materials

The inconsiderate expository text (IE) was a 760-word section with a fourth-grade Raygor readability score (Raygor, 1977) taken from the fifth-grade book of the Holt Science Series (Abruscato, Fossaceca, Hassard, & Peck, 1986). It considered the topic of seasonal change but made no reference to the misconception.

The considerate expository text (CE) was 1,075 words long and had a sixth-grade Raygor readability rating. It was constructed by us according to Armbruster's (1985) guidelines; for example, information was built step by step and key ideas were repeated and highlighted by use of bold print and spacing. This text also discussed the common misconception and directly refuted it. Both the IE and the CE texts, which also had been used in the Maria (1988) study, highlighted and defined scientific vocabulary such as *revolution* and *summer solstice*.

The considerate soft expository text (CSE) was constructed for this study. It was 1533 words long and had a fourth-grade Raygor readability score. It focused on the same key scientific concepts as the other two texts but in the context of a story in which a group of children sought the answer to Katie's puzzling question: "Why was it summer in July in New York and winter in July in Australia?" Although it did contain key vocabulary, there was less emphasis on definitions since this emphasis did not fit the narrative nature of the text. All three texts contained diagrams noting the earth's position in relation to the sun. The diagrams in the CE and CSE texts also noted distance of the earth from the sun.

Instruments

Three tests were used. A 12-item vocabulary multiple-choice test was used as one pretest of prior knowledge about the topic of seasonal change. This test included all 7 technical vocabulary words relating directly to seasonal change defined in the IE and CE texts. Definitions of more general words such as *tilt* and *slant* were specifically related to the topic of seasonal change.

A misconception test, which was given as a pretest, immediate posttest and delayed posttest, was a 10-item multiple-choice test developed by Marshall (1987) for use with preservice teachers. Every item on this test contained a distractor related to the misconception that the earth was close to the sun in summer and farther away in winter. Several slight revisions were made to make the test more suitable for children. These two tests were also used in the Maria (1988) study.

An application test, which was given as an immediate and delayed posttest, was developed for this study. It contained two questions. In the first, children were presented with four diagrams showing the position of the earth in summer and winter and the distance of the earth from the sun at those seasons. Only one of the diagrams was correct; the others were incorrect either because the tilt of the earth was pictured incorrectly or the distance of the earth from the sun was incorrect. The children were directed to choose the correct diagram and write an explanation for their choice. The second question asked children for the scientific explanation of why it is warm in summer and cold in winter.

Design and Procedure

Pretesting with the vocabulary and misconception multiple-choice tests took place in class groups and was carried out by the classroom teachers. Children who scored more than 5 on the misconception test were not considered to have the misconception and were not used as subjects. Since a 2 × 3 (Grade × Type of Text) design was used in the study, the 50 seventh graders and the 82 fifth graders who had the misconception were randomly assigned to three groups: Inconsiderate Expository (IE), Considerate Soft Expository (CSE), and Considerate Expository (CE). One month later the children read the texts and were again tested in class groups. Several children who had the misconception were absent, resulting in a final total of 47 seventh-grade subjects and 75 fifth-grade subjects.

One month later, classroom teachers administered the misconception test and application test to the children again. Forty five seventh-grade and 66 fifth-grade subjects were present for the delayed testing.

RESULTS

In determining whether the groups in each grade differed in reading, separate ANOVAs were computed since each grade had taken a different test. Total Reading DRP NCE scores were available for 42 seventh graders and total reading NCE scores from the MAT 6, Elementary Form M were available for 70 of the fifth graders. Reading scores did not differ for either the seventh graders ($F(2, 41) = .31$, $p < .74$) or the fifth graders ($F(2, 69) = 2.77$, $p < .07$). Table 1 below gives the means and standard deviations for the three conditions in the two grades.

Prior knowledge was determined by the scores on the vocabulary and misconception pretests. Two-way ANOVAs were computed for each of these dependent measures. Vocabulary pretest scores (Grade 7: IE $M = 7.27$, $SD = 2.22$; CSE $M = 7.12$, $SD = 2.06$; CE $M = 8.31$, $SD = 1.32$; Grade 5: IE $M = 6.74$, $SD = 2.16$; CSE $M = 7.89$, $SD = 1.67$; CE $M = 6.32$, $SD = 1.87$) did not differ for grade ($F(1, 118) = 1.97$, $p < .17$) or condition ($F(2, 118) = 1.50$, $p < .23$). Misconception pretest scores also did not differ for grade ($F(1, 119) = .23$, $p < .64$) or condition ($F(2, 119) = .33$, $p < .72$). Misconception pretest means and standard deviations are found in Table 2 along with immediate and delayed post test means and standard deviations.

Separate two-way ANOVAs were also computed for each of the posttest measures (the immediate and delayed misconception and application tests). There was a difference between grades ($F(1, 118) = 17.42$, $p < .001$) and conditions ($F(2, 118) = 23.29$, $p < .001$) on the immediate misconception posttest. Seventh graders ($M = 7.83$, $SD = 1.80$) scored higher than fifth graders ($M = 6.72$, $SD = 1.91$) and a Scheffe test ($p < .001$) indicated that children who received the CSE text and those who received the CE text scored higher than those who received the IE text. On the delayed misconception posttest, there was no difference between the two grades ($F(1, 104) = 3.55$,

Table 1

Means (and Standard Deviations) of Total Reading NCE Scores for Different Text Conditions in Grades 5 and 7

Text Condition	Grade 5	Grade 7
Inconsiderate Expository (IE)	60.29 (15.80)	69.23 (8.24)
Considerate Soft Expository (CSE)	67.46 (15.03)	70.33 (9.40)
Considerate Expository (CE)	58.02 (14.55)	67.50 (11.45)

Table 2

Means (and Standard Deviations) of Misconception Test Scores in Different Text Conditions and at Different Times of Testing for Grades 5 and 7

		Time of Testing	
Text Condition	Pretest	Immediate Posttest	Delayed Posttest
Grade 5			
Inconsiderate Expository (IE)	3.84 (1.17)	5.11 (.94)	5.21 (2.01)
Considerate Soft Expository (CSE)	3.48 (1.16)	7.70 (1.61)	7.44 (2.13)
Considerate Expository (CE)	3.25 (1.48)	6.86 (1.98)	5.58 (1.73)
Grade 7			
Inconsiderate Expository (IE)	3.27 (1.03)	6.47 (1.73)	4.56 (2.00)
Considerate Soft Expository (CSE)	3.29 (1.36)	8.65 (1.00)	5.46 (2.23)
Considerate Expository (CE)	3.64 (.93)	8.29 (1.90)	5.62 (2.09)

$p<.06$) but there was a main effect for condition ($F(2, 104)=5.52$, $p<.005$). A Scheffe test ($p<.01$) indicated that once again children who received the CSE text scored higher than those who received the IE text. However, there was no difference between the CE and IE texts. There were no interactions on either the immediate misconception posttest ($F(2, 118)=.16$, $p<.86$) or the delayed misconception posttest ($F(2, 104)=1.24$, $p<.30$). A MANOVA indicated a main effect for time of testing ($F(2, 198)=150.45$, $p<.001$). Paired t tests indicated that children scored higher on the immediate misconception test than they did on the delayed misconception test ($t(104)=7.03$, $p<.001$) and higher on the delayed test than they did on the pretest ($t(104)=9.32$, $p<.001$).

Scores on the application test ranged from 0 to 9. Children received 1 point for choosing the correct diagram. Their explanations were scored for presence of critical ideas which were part of the scientific explanation of seasonal change. Children also received 1 point if they had no statement of the misconception in any of their explanations. In independently scoring the application tests according to this scoring system, there were only 5 disagreements which were resolved by discussion.

The immediate application test differed by grade ($F(1, 118)=5.87$, $p<.02$) and condition ($F(2, 118)=18.32$, $p<.001$), but there was no interaction ($F(2, 118)=.23$,

Table 3

Means (and Standard Deviations) of Application Test Scores in Different Text Conditions and at Different Times of Testing for Grades 5 and 7

Text Condition	Time of Testing Immediate Postest	 Delayed Posttest
Grade 5		
Inconsiderate Expository (IE)	1.76 (1.31)	1.81 (1.57)
Considerate Soft Expository (CSE)	4.15 (1.86)	3.40 (2.09)
Considerate Expository (CE)	3.29 (1.98)	1.98 (1.63)
Grade 7		
Inconsiderate Expository (IE)	2.30 (1.44)	2.80 (1.87)
Considerate Soft Expository (CSE)	5.28 (2.29)	4.00 (2.63)
Considerate Expository (CE)	4.18 (2.37)	3.15 (1.99)

$p<.80$). Seventh graders ($M=3.94$, $SD=2.39$) scored higher than fifth graders ($M=3.21$, $SD=1.99$). Scheffe tests at $p<.001$ indicated that children who read the CSE text did better than those who read the IE text. However, again there was no difference between the CSE and the CE texts nor between the CE and IE text.

The delayed application test also differed by grade ($F(1, 104)=5.60$, $p<.02$) and condition ($F(2, 104)=5.80$, $p<.004$). Seventh graders ($M=3.34$, $SD=2.22$) scored higher than fifth graders ($M=2.51$, $SD=1.94$) and a Scheffe test ($p<.05$) indicated that children who read the CSE text scored higher than those who read the CE text or the IE text. Once again there was no interaction ($F(2, 104)=.36$, $p<.70$). A MANOVA indicated that children in both grades scored higher on the immediate test than on the delayed test ($F=5.83$, $p<.02$). Table 3 contains the means and standard deviations for the immediate and delayed Application Tests.

DISCUSSION

All the measures indicated that the subjects had learned the scientific explanation of seasonal change better with the considerate soft expository text (CSE) than with the inconsiderate text (IE). However, only the delayed application test indicated better learning with the considerate soft expository text (CSE) than with the considerate expository text (CE). That the difference showed up on the delayed test, however, suggests that the considerate soft expository text may make the information more memorable. The consistently better scores achieved by children who read the considerate soft expository text (CSE) suggests that further studies should be done using this text type to present science information, particularly information that corrects misconceptions.

In contrast with the results of the Maria (1988) study, the considerate expository (CE) text was only better than the inconsiderate expository (IE) text on one measure, the immediate misconception test. Perhaps the children's previous instruction on the topic was responsible for this finding. Future studies should directly compare children who have received instruction with those who have not.

Seventh graders did differ from fifth graders at the outset of the study and after reading the texts. Fewer seventh graders (42%) than fifth graders (64%) had the misconception despite the fact that fifth graders had studied the topic only a few months before and seventh graders had studied the topic 2 years before. Of course, many things may have happened to the seventh graders in those 2 years which may have consolidated the learning for them. Seventh graders learned the new information more easily than the fifth graders as measured by three of the four dependent measures. Why the delayed misconception test should have a different pattern of results is hard to explain. The fact that the considerate soft expository text was more helpful for both seventh and fifth graders raises the question of whether presenting abstract science information that contradicts misconceptions in a story about a real-life problem-solving situation may be helpful for older children and adults. This is another question that should be tested in future studies.

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TRANSFER EFFECTS OF PRIOR KNOWLEDGE AND USE OF GRAPHIC ORGANIZERS ON COLLEGE DEVELOPMENTAL READERS' SUMMARIZATION AND COMPREHENSION OF EXPOSITORY TEXT

Ernest Balajthy
State University of New York at Geneseo

Renee Weisberg
Beaver College

Though often recommended to students as a cognitive learning strategy, use of graphic organizers has received little empirical examination (Holley & Dansereau, 1984). Research has recently confirmed that training in use of graphic organizers has beneficial effects on students' comprehension (Berkowitz, 1986; Guri-Rozenblit, 1989) and summarizing abilities (Weisberg & Balajthy, 1989, in press). However, such studies often have used artificially constructed texts with consistent organizational patterns. Real-life material encountered by students is rarely so well organized (Schallert & Tierney, 1981), and questions have been raised as to the practical transfer benefits of such training (Hare, Rabinowitz, & Schieble, 1989).

The purpose of this research was to investigate the transfer effects of training in the use of graphic organizers and summary writing on college developmental readers' recognition of the compare/contrast text structure. Content area textbook materials were used in which the organizational structure is not as clearly apparent as in the artificially constructed passages used for training. The researchers sought to determine whether these less able readers could use the strategies they had been taught to recognize the specific text structures with which they had been successful during training. The students' ability to transfer training was examined in the light of their prior knowledge of the passage's content.

An earlier study of similar design (Weisberg & Balajthy, 1989) used a younger and less able population of remedial high school students. Results indicated that transfer of training did occur on measures designed to determine recognition of text structure and to assess summary writing ability. This held true for both moderate and low prior knowledge passages. For the comprehension assessment, however, the trained group outscored the controls only on a moderate, not on a low, prior knowledge passage. The researchers suggested that prior knowledge on the latter passage was so low that subjects could not bring their strategies to bear in effectively improving comprehension. In the present study, as with the earlier study, these effects were examined using low and moderate prior knowledge passages.

METHOD

Subjects

The study was conducted at a northeastern state college of liberal arts and sciences. Subjects were a college freshman population ($n = 66$) required to take a developmental reading/study skills course. Three groups of students were required to take the developmental course: (a) Educational Opportunity Program (EOP) students, admitted to the college based on low high school performance and economic need; (b) Talented Opportunity Program (TOP) students, admitted through a special program to encourage admission of minority students; and (c) Special Talent Athletes (STA) students, admitted because of exceptional athletic ability, despite poor high school performance.

Subjects were randomly assigned to an experimental or control group. Due to absences, only 52 students were included in the final analyses. The mean score on the comprehension subtest of the *Stanford Diagnostic Reading Test* (Karlsen, Gardner, & Madden, 1984) for the experimental group was 49.97 and for the control group 51.53. The overall mean score for both groups combined was 50.78, corresponding to the 41st percentile and to a grade level of 11.3.

Procedures

Pretest. Prior to training, all subjects were administered a true-false test of prior knowledge on several topics, including the two to be included in the posttest passages. Ten questions were included for each topic. The pretests were used to verify which passages presented topics associated with low and with moderate prior knowledge for these subjects.

Training. Instruction was centered on a collection of eight readings consisting of scientific expository text, each of which had a comparison-contrast internal organization. The compare/contrast text structure presents special challenges for less able readers (Englert & Hiebert, 1984; Rafael & Kirschner, 1985; Richgels, McGee, Lomax, & Sheard, 1987), who have difficulty summarizing even easier text structures (Head & Buss, 1987). Henk and Stahl (1989) have verified that even college developmental readers have difficulty comprehending this structure. Five of the readings were taken from science textbooks and were adapted to reflect tightly constructed organizational patterns. The three other passages were taken directly from the textbooks and, though they did have a central comparison-contrast pattern, the organizational structure was not as clearly presented.

Students in the experimental group were trained by one of the researchers to follow this basic procedure: (a) Read the passage to identify topics and categories of comparisons, (b) use underlining and annotation to identify and organize comparisons and contrasts, (c) using telegraphic writing, complete a graphic organizer (see Figure 1 for an example of a student's graphic organizer), and (d) incorporate the comparisons and contrasts into a summary statement.

Instruction included explicit rules and modeling for constructing graphic organizers and writing summaries. Experimental subjects received four training sessions of

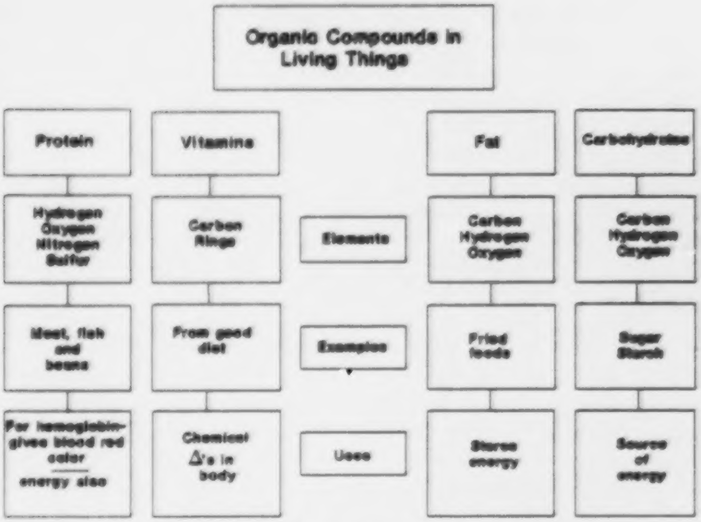
Organic Compounds in Living Things
Protein
Vitamins
Fat
Carbohydrates
Hydrogen Oxygen Nitrogen Sulfur
Carbon Rings
Elements
Carbon Hydrogen Oxygen
Carbon Hydrogen Oxygen
Meat, fish and beans
From good diet
Examples
Fried foods
Sugar Starch
For hemoglobin-gives blood red color
energy also
Chemical Δ's in body
Uses
Stores energy
Source of energy

Figure 1. Sample student graphic organizer.

40 minutes each over a 2-week period, as well as short homework assignments for three of the sessions. Initial training was carried out through whole-group instruction and modeling in the first session. The last three sessions followed this schedule:

1. The instructor collected homework and briefly modeled the process of constructing a graphic organizer and a summary for the homework passage.
2. Students were divided into cooperative learning groups of three to increase motivation and group problem solving.
3. Each group was given the same reading assignment and told to study as a group for a possible posttest. Each group was required to annotate passages, then construct a graphic organizer and a summary. Work was monitored by the instructor.
4. Graphic organizers and summaries were collected. A short answer fill-in comprehension test was administered on one occasion.
5. The passage was discussed, and the instructor modeled construction of the graphic organizer and the summary.

The control group was not entirely untrained in the procedure. During the four training sessions for the experimental group, the control group carried out various comprehension-oriented activities that did not deal with either graphic organizers or comparison-contrast relationships. They did, however, receive a one-half hour presentation that introduced them to comparison-contrast graphic organizers and summaries so they could complete the posttest.

Posttests. Both groups were administered a posttest consisting of two scientific comparison-contrast passages. One passage was directly taken from Jantzen and Michel (1986) and the other from Heimler and Price (1981). The passages were administered in counterbalanced order to eliminate effects of order. One of the transfer passages, titled "Organic Compounds," was designated as a moderate prior knowledge passage based on pretesting described above. The other passage, titled "Types of Fish," was designated as low prior knowledge.

Subjects were instructed to read and annotate the passage. They then constructed a graphic organizer and a summary. All materials were collected and the subjects completed an immediate retention multiple-choice test of 10 items. The questions, which addressed all major comparisons in each passage, were created by the researchers and verified for passage dependency by them and by the students' classroom instructors.

Scoring and Data Analysis

Prior to administering the posttest, the researchers and their assistants had created a master template of the comparison-contrast idea structure for each posttest passage. This was carried out by parsing the text into idea units and constructing a grid of the comparisons and contrasts within the passage. Subjects' posttest graphic organizers and summaries were separately scored against the template. The graphic organizers and summaries were evaluated separately by two persons (the researchers and/or their assistants). Each subject's score was the percentage of items on the master template which had been included. Minor differences were resolved in discussion.

RESULTS

Results were analyzed using MANOVA with three dependent task variables: (a) graphic organizers, (b) summarizing, and (c) comprehension. The between-subjects factor was Group (trained and untrained). The within subjects factor was Prior Knowledge (low and moderate). (See Table 1.)

The main effect for Group was statistically significant, multivariate $F(1, 51) = 10.88$, $p < .01$. The effect for Prior Knowledge was also statistically significant, multivariate $F(1, 52) = 42.87$, $p < .0001$. In addition, the effect for Task was significant, multivariate $F(2, 102) = 196.84$, $p < .0001$. Two interactions were significant, for Group by Task, multivariate $F(2, 102) = 3.77$, $p < .05$, and for Task by Prior Knowledge, multivariate $F(2, 102) = 9.98$, $p < .0001$.

The experimental group mean across all tasks was 62.30%; the control group mean was 55.49%. Univariate analyses indicated that the experimental group outscored the controls in both graphic organizer, $F(1, 51) = 13.40$, $p < .001$, and summarizing $F(1, 51) = 6.25$, $p < .02$, scores. Effect sizes, calculated according to procedures described in Cohen (1977), were .84 and .48, in the large and moderate ranges respectively. There was no significant difference on the comprehension test.

Combined experimental and control group mean scores across all tasks were 64.80% on moderate prior knowledge passages and 51.93% on low prior knowledge passages. Individual univariate analyses indicated significant differences between prior knowledge conditions for both summarizing and comprehension, $F(1, 43) = 15.54$, $p < .001$ and $F(1, 43) = 30.31$, $p < .001$. Moderate prior knowledge scores for summarizing and comprehension were 16.51 and 17.63 percentage points higher than for

Table 1

Mean Percentages (and Standard Deviations) by Group

	Graphic Organizer	Summary	Comprehension Test
Experimental Group ($n = 26$)			
Low Prior Knowledge	68.96 (17.64)	25.32 (24.83)	71.28 (13.99)
Moderate Prior Knowledge	74.23 (14.36)	44.63 (25.24)	87.81 (12.11)
Control Group ($n = 26$)			
Low Prior Knowledge	56.91 (19.25)	19.75 (21.30)	69.33 (19.28)
Moderate Prior Knowledge	60.61 (16.94)	33.46 (15.35)	88.06 (13.27)

low prior knowledge, with effect sizes of .95 and 1.45, both in the large range. The difference for graphic organizers was only 4.48 points, and the univariate analysis indicated no difference.

DISCUSSION

The results of the present study validate previous research with elementary and secondary grade poor readers suggesting the benefits of instruction in strategies that direct readers' attention to text structure (Weisberg & Balajthy, 1989, 1990). As in the previous study with secondary readers (Weisberg & Balajthy, 1989), these developmental college students were able to transfer their training in the use of graphic organizers and summaries to real-world textbook materials. This ability is critical for effective comprehension and retention of content area material.

Subjects in the experimental group did not obtain higher comprehension scores than those in the control group. In the study at the secondary level (Weisberg & Balajthy, 1989) with similar results, the authors had suggested that the prior knowledge of the topics (mean of 31.88% comprehension) in the passages had been so low that subjects could not bring their strategies to bear in effectively improving memory of the passage. In the present study, a different explanation might be offered. The overall mean comprehension score was 79.12%, a high score considering that prior knowledge of the topics was low to moderate. This suggests that comprehension ability of the subjects was fairly high, a suggestion that is verified by examination of the mean comprehension ability of the subjects on the Stanford Diagnostic Reading Test. A previous study by the authors (Balajthy & Weisberg, 1989) had found that training in generative learning strategies has greater effect on the comprehension of poorer college readers than better. It may be that the higher comprehension ability of the subjects in the present study was not readily amenable to improvement.

The main effect for prior knowledge was expected, since readers comprehend (Afflerbach, 1986; Balajthy & Weisberg, 1989; Johnston, 1984; Weisberg & Balajthy, 1989) and summarize (Pratt, Luszcz, McKenzie-Keating, & Manning, 1982; Weisberg & Balajthy, 1989) higher topic familiarity passages better than passages with low topic familiarity. An examination of the task by prior knowledge interaction indicated, however, no significant differences due to prior knowledge on performance in the graphic organizer task. It may be that these college readers, who are more skilled than most subjects in the studies cited above, are better able to recognize and diagram text structure, even when the content is less familiar. Although this finding merits further investigation, the possibility that use of graphic organizers may be a generative strategy relatively unaffected by level of prior knowledge for college developmental students is an issue of potential importance for cognitive learning strategy research and teaching.

Previous research by the authors (Weisberg & Balajthy, 1989) has suggested that lower prior knowledge passages are more amenable to instructional effects than higher prior knowledge passages. The present study did not substantiate these earlier findings. Differences in results between the present and earlier studies may be due to the population, to differences in levels of prior knowledge on passages, or to a combination of both. Additional research might investigate whether the effects of training for college students are less affected by prior knowledge than for the younger readers in earlier studies.

Although the results of this study offer strong evidence for the usefulness of generative learning strategies, and for the transfer of training in these strategies to real-world textual materials, the limitations of this transfer must be noted. The actual transfer passages were similar to the adapted training passages in a variety of ways and the readability levels were similar. Lengths of passages varied from 400 to 900 words, but many real-world tasks involve reading selections which are much longer. The training was carried out using a specific text structure, the comparison-contrast structure, and both the adapted and transfer passages employed that structure. Whether training in one text structure will transfer to another structure is an issue not addressed, nor is the issue of transfer between content areas. As Tobias (1987) has noted, there is little existing evidence that learning strategies transfer across content areas.

Informal conversation with the subjects in the study showed that many appreciated the learning strategy. They suggested that the strategy made them aware of authors' use of the comparison-contrast structure, so they would be more likely to spot its use in textbooks and employ their already well-developed ability to analyze the structure of concepts presented. They also suggested that the training convinced them of the importance of using text structure as a tool in retaining information, and they appreciated the usefulness of the graphic organizer as an effective method of spatially reorganizing information from text.

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WHAT DETERMINES COURSE ACHIEVEMENT? AN INVESTIGATION OF SEVERAL POSSIBLE INFLUENCES ON ACADEMIC OUTCOMES

Ann J. Pace, Karol Walters, and John K. Sherk, Jr.
University of Missouri—Kansas City

The literature on studying presents something of a paradox. On the one hand, both researchers and practitioners frequently offer the seemingly reasonable proposal that by using appropriate study strategies and practices, students should be able to improve scholastic performance (Rohwer, 1984). The efficacy of various procedures appears supportable by extant theory, laboratory research, and the informed observations of school and college instructors. On the other hand, it has been difficult to demonstrate a clear and unequivocal relation between particular studying strategies and real-world course achievement (Schumacher, 1987). This picture is supported by studies such as those by Nolen (1988), Pace, Peck, and Sherk (1986), and Pace, Sherk, Peck, and Baldwin (1985), which found no statistical relationship between self-reports of students' studying practices and measures of academic achievement. Despite the limitations of such procedures, a consensus seems to be developing that the complexity of actual learning situations, especially the variety of contextual factors that influence individual course outcomes, limits the probability that particular study strategies will produce demonstrable effects.

Schumacher (1987) recently has underscored the importance of context for understanding the role of studying in learning. Other analyses of academic studying, such as those by Biggs (1984), Nolen (1988), and Thomas and Rohwer (1986), emphasize that a number of personalogical and situational factors, such as motivation and course expectations, influence strategy use and academic outcomes in complex ways. Additionally, previous academic achievement, as reflected, for example, in cumulative GPA, and academic aptitude, such as SAT scores (Schuman, Walsh, Olson, & Etheridge, 1985), are known to be among the best predictors of future academic performance. Prior subject matter knowledge is also a crucial determiner of later success in courses in that field. Further, Schuman, Walsh, Olson, and Etheridge (1985), in a series of large-scale investigations with college students, consistently found that class attendance could better explain variations in subsequent course grades than hours studied.

Thus, as Thomas (1987) has argued, a single linear model of "good" studying practices may be inappropriate, and researchers need to look much more closely at the contextual or situational factors that affect students' performance and perceptions in particular courses, as well as instructors' expectations, to derive an accurate picture of the factors influencing academic achievement and individual studying decisions.

The study described here is an initial effort in this direction and was designed to obtain a picture of the variety of factors that affect course achievement within specific college courses.

METHOD

Subjects and Setting

To accomplish this aim, the cooperation of two instructors (A and B) of the same introductory college economics course was obtained. This course was held during the fall semester of the academic year. Initial enrollment was 93 (52 female and 41 male) in A's class and 72 (35 female and 37 male) in B's; 80% of the students in both classes were freshmen and sophomores. Fewer than 10% of the students in either class represented ethnic minorities. Students in each class were given a general explanation of the purpose and scope of the project, and their participation was solicited.

Those students who agreed to participate were asked to give the investigators permission to obtain their cumulative GPAs and, if possible, their scores on a measure of mathematics aptitude, such as the SAT-M or ACT-Math. Students were also asked to allow their course grades and examination scores to be made available to the investigators.

In A's class, the mean GPA, on a 4-point scale, was 3.09 ($N = 38$), with a range from 2.19 to 4.0; in B's class the mean GPA was 2.99 ($N = 35$), with a range from 1.89 to 4.0. The mean ACT-Math score in A's class was 21.3 ($N = 26$); the range was from 7 to 36. For B's class, the Act-Math mean was 20.8 ($N = 29$), with a range from 8 to 33. The mean age of the students in each class was 21 ($N = 38$, for both classes), with ranges from 18 to 40 in the first class and 18 to 47 in the other.

Procedure

Instructors provided course outlines and descriptions of their intentions and purposes for the course. Each class was also visited periodically by one of the investigators, three times to address the whole class (to introduce the study, distribute material, etc.) and at other times, only briefly, to collect information from individual students. Although both instructors were teaching the same course and agreed on its general content, they approached the course somewhat differently. One instructor used a textbook that he had written, and his lectures corresponded closely to the sequence of topics in that text. The other instructor used a different textbook, and his lectures tended to diverge more from the assigned reading.

Participating students were requested to provide various kinds of information at different times during the semester. At the beginning of the course, and again toward the end, they were asked to state their level of aspiration in the course in terms of an expected grade. In addition, they were asked to provide information about their majors, their reasons for taking the course, the hours per week they worked, the hours per week they had available for studying, both in general and for this specific course, their age, and the total number of hours in which they were enrolled during that semester. A randomly selected group of students in each class was also asked to keep narrative logs over the course of the semester, in which they recorded information about how and why they studied outside of class.

ANALYSES AND RESULTS

Approximately two-thirds of the participating students in each class were economics majors. Most of the nonmajors reported they were taking the course to satisfy a college core requirement.

Instructor A gave a total of three exams including the final, whereas Instructor B gave five exams including the final. All exams used multiple-choice and short-answer supply questions predominantly. Each instructor developed his own exams; therefore, different tests were given in the two classes. The first examination in each class was held toward the end of the first month of the semester. The mean score on the first exam in A's class was 42, with a range from 32 to 54. In B's class, the mean score on the first exam (a different one) was 29.2, and the range was from 17 to 39. The mean final grade, on a 4-point scale, was 2.6 ($N = 89$) in A's class and 2.42 ($N = 62$) in B's class. Results were comparable (2.67 and 2.47, respectively) for the 38 students in each class who participated in the study.

To assess the effect of the many factors examined on final course achievement, several of these variables were entered into multiple regression analyses (one for each class), with final exam score as the criterion variable in each case. The final exam in each class was cumulative, in that it covered material from the entire semester. Separate analyses were performed for each class, as the exams and conditions within each class were not comparable. Final course grade was not employed in the analysis, since it was determined, in part, from other variables used. Complete data from 34 students were available for one class (A) and from 31 for the other (B). Other students did not choose to participate, and, in some cases, data for participating students were not available or not provided by the instructors. Since very few of the students took the SAT exams, SAT scores are not included. Insufficient data were provided for some of the variables, such as expected grade, to use them in the overall analyses. The mean number of hours per week students in A's class reported having available for studying (overall) was 23.3; the comparable figure for B's class was 19.5. Students in A's class reported working an average of 17.3 hours per week, while the average for B's class was 18.4. Students in both classes were enrolled for an average of 13.5 hours.

Predictor variables entered into each analysis included cumulative GPA, ACT-Math score, hours enrolled, age, hours of work per week, estimated total hours per week available for studying, and first exam score. Each analysis (one for each class) showed that the only variable which explained a significant portion of the obtained variance was first exam score (44% in one case, 46% in the other). In each case, cumulative GPA and ACT-Math score were each either moderately or highly correlated with final exam score, but they also showed a strong relationship to first exam score and thus did not independently predict final course performance. Other variables,

Table 1

Intercorrelations Between Variables Included in Regression Analyses

Variables	GPA	Hrs. Enr.	Age	Hrs. Work	Hrs. Stud.	Exam 1
Class "A" (*n* = 34)						
GPA	—	—	—	—	—	—
Hrs. Enr.	.151	—	—	—	—	—
Age	.325	−.133	—	—	—	—
Hrs. Work	−.228	−.446	−.132	—	—	—
Hrs. Stud.	−.115	−.123	−.007	−.300	—	—
Exam 1	.541	−.045	.217	−.058	−.323	—
Final Exam	.384	−.033	.041	−.043	−.091	.691
Class "B" (*n* = 31)						
GPA	—	—	—	—	—	—
Hrs. Enr.	.150	—	—	—	—	—
Age	.171	−.245	—	—	—	—
Hrs. Work	−.300	−.527	.105	—	—	—
Hrs. Stud.	.335	.291	−.023	−.479	—	—
Exam 1	.375	−.111	−.101	.004	.171	—
Final Exam	.339	.055	.020	−.165	.132	.665

Note. Hrs. Enr. = Number of semester hours for which student is enrolled; Hrs. Work = hours per week student works; Hrs. Stud. = estimated hours per week available for studying.

such as age, hours worked, and hours available for studying, had minimal and inconsistent effects. The intercorrelations between the variables included in the regression analyses are shown in Table 1.

The studying logs kept by a subset of students in each class (8 in one case, 6 in the other) indicated that they primarily read their texts or notes when studying. In some cases, however, other activities, such as group discussions, were mentioned. In their logs, students noted the time they started studying and the time they stopped for each occasion that they studied for this course. Students also commented on problems they were having with the class, the instructor, and/or the text. Although class observations and interviews revealed that the two instructors differed in their approach to teaching, this difference seemed to have little effect on the way the students studied. In addition, although some students were quite systematic about studying, others were much less so. Ten of these 14 students studied economics at least once a week, and 9 of these 10 studied at least 15 times over the period of 9 weeks that they kept the logs.

CONCLUSIONS

These results are not surprising, but they are nonetheless interesting. They indicate that initial performance in such a college course, itself influenced by prior aptitude and achievement, is the best predictor of final achievement in that course, regardless of which instructor taught it. Not only does the initial exam in a course reflect, to some degree, students' aptitude for and interest in that course, but it also may be encouraging to those who do well and discouraging to those who don't. Other variables thought to influence course achievement may inherently have less statistical variability, and also the direction and intensity of their influence may differ across students. That is, factors such as hours of work per week, age, and initial expectations may affect different students differently. It is not the case that they are not important, but probably that their importance varies, suggesting again the complexity of motivational and situational variables in academic achievement. Further research is needed to study these factors more carefully and closely.

In particular, this investigation underscored the difficulty of obtaining a real picture of what is going on in large, introductory college courses, which tend to be highly impersonal. Typically, there is little class discussion and little ongoing student involvement. Feedback to students tends to be infrequent. Given these circumstances, students probably develop "survival strategies" for negotiating success in such courses. Survey procedures which use paper-and-pencil measures, however, offer few clues as to how students may be doing this, or into how much actual learning may be going on. To obtain such information more qualitative or narrative methods may be needed to gain insight into the messages students give themselves concerning course expectations, events and outcomes, and how they deal with them.

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CHILDREN'S ABILITY TO UTILIZE THE MNEMONIC KEYWORD METHOD: AN EDUCATIONAL APPLICATION WITHIN FOURTH-GRADE CLASSROOMS

Nancy L. Williams
University of North Carolina at Charlotte

Within the last decade, research in the area of mnemonics has focused upon the *keyword method*, a technique using imagery to link new and known information (Pressley, Borkowski, & Johnson, 1987). Here, the learner pairs a new fact with a perceptually similar keyword, incorporates both in an interactive visual image, and then, when encountering the new fact, uses the image/keyword to generate an appropriate response.

Although the results of this method are impressive (Atkinson, 1975; Levin, Johnson, Pittelman, Levin, Shriberg, Toms-Bronowski, & Hayes, 1984; Pressley & Levin, 1978), educators (Graves, 1986; Sternberg, 1987) have expressed concern over the experimental conditions used to test the technique. That is, the vast majority of studies have been conducted under laboratory-type situations (for reviews, see Pressley, Borkowski, & Johnson, 1987; Pressley, Levin, & Delaney, 1982). To investigate actual classroom application of the keyword method, some studies have used content material (Konopak & Williams, 1988; Levin, Morrison, McGivern, Mastropieri, & Scruggs, 1986; Williams & Konopak, 1988), with only one study using ecologically valid materials (Williams, Konopak, & Readence, 1989).

The Williams et al. study (1989) successfully attempted to teach fourth graders how to utilize the keyword method within the context of a science lesson over 3 days. The promising results, however, are limited by a minimal amount of instruction. The present study, therefore, was an effort to extend previous research on the efficacy of the keyword method by teaching children a study strategy over a period of 2 weeks within an ecologically valid context. Specifically, fourth graders were instructed in either the mnemonic keyword method or in notetaking/outlining, a common study strategy suggested in fourth-grade curricula. Teaching included direct instruction, guided practice, and independent practice within a classroom setting.

METHOD

Subjects

Subjects were 106 heterogeneously grouped fourth graders enrolled in a rural elementary school. The four intact classes were randomly assigned to either a mnemonic keyword group or notetaking/outlining group. To insure equivalency of groups by ability, standardized reading test percentile scores (Comprehensive Assessment Program, 1983) were collected and compared. The mnemonic keyword group with 53 subjects had a mean of 47.40 ($SD = 24.45$), whereas the notetaking/outlining group, also with 53 subjects, had a mean of 52.81 ($SD = 21.51$). Two preliminary t-tests indicated no statistically significant differences between the two treatment conditions in regard to reading ability or prior knowledge of the content material.

Materials

Instructional materials included passages selected from a fourth-grade basal reader (Early, Canfield, Karlin, Schottman, Srygley, & Wenzel, 1983), not used by the classes, for initial study strategy instruction, researcher-developed charts, and a chapter on Midwest climate and resources from the social studies textbook (Cangemi, 1986) utilized by the fourth-grade classes and selected by the fourth-grade teachers for strategy application.

Assessment materials included a test of prior knowledge, adapted from Zakaluka, Samuels, and Taylor's (1986) procedure, immediate and delayed multiple-choice and probed recall tests following the social studies instructional unit, and study strategy questionnaires.

The test of prior knowledge (a phrase on Midwest climate and resources) was presented to the subjects who were then given 5 minutes to list words related to that topic. The multiple-choice assessment consisted of 14 questions based upon the information contained within the chapter in the social studies textbook. Independent judges examined the items for content validity and to designate literal or inferential level questions. The probed recall consisted of four phrases targeting significant information contained within the chapter in the social studies textbook. Here, the subjects were required to write what they remembered about these target phrases. The delayed multiple-choice and probed recall tests were reordered versions of these assessments.

The final assessment measure included two forms of a study strategy questionnaire. The initial form addressed present study skills whereas the second form, administered after instruction in social studies, asked the subjects to report the employed study skill, its helpfulness, and use.

Procedure

The researcher, following the daily schedule of the subjects, conducted all instruction and testing within the four intact classes. During the first week, the researcher met with subjects in reading classes for strategy instruction. After completion of the initial study strategy questionnaire, the subjects were instructed in either mnemonic keyword or notetaking/outlining study strategies. During the second week, the researcher instructed the four classes in the social studies period, using either mnemonic keyword or notetaking/outlining methods to study Midwest climate and resources.

Mnemonic keyword group. During the first week, on Day 1, subjects completed the study questionnaire and were given initial instruction in the mnemonic keyword method. On Day 2, after a review, subjects practiced this study strategy using a passage from a fourth-grade basal reader (Early et al., 1983). On the third day, subjects were presented with another passage and worked within small groups for application of the strategy.

In the second week, on Day 1, subjects were administered the test of prior knowledge, reviewed the mnemonic keyword method, and introduced to the chapter. After establishing a purpose for reading, the subjects read a passage about the climate of the Midwest, compared it to the climate of the Northeast, and discussed the amount of rainfall in the Central and Great Plains. They were then provided with the keyword *Clem Ant* for *climate* and discussed the passage using researcher-developed charts illustrating *Clem Ant* visiting the area. An independent written activity and discussion followed.

On Day 2, after a review, the next section of the chapter, that of resources and industries of the Midwest, was introduced to the subjects. Vocabulary was taught using the keyword method. Here, the subjects worked in small groups to generate keywords, which were shared with the entire class. The subjects were provided with a purpose for reading and instructed to silently read the passage. After reading and discussion of the main topics, the subjects were presented with keywords for the resources and industries of the Midwest. These included: (a) *resources* represented by a *sorcerer* who transformed such resources as corn, wheat, milk, and cattle into respective products manufactured in the Midwest; and (b) *industries* represented by *trees* that contained flour and cereal, cheese and other dairy products, and meat. Discussion and a written activity concluded the lesson.

On Day 3, after a review, the subjects, in small groups, were asked to read the textbook passage about Mark Twain. Then, after reading the passage, they were to generate their own keywords to help them remember the important facts. These keywords and images were illustrated on the chalkboard and shared with the other subjects.

On Day 4, the subjects completed an immediate probed recall, an immediate multiple-choice assessment, and the questionnaire. Then 5 days later, prior to more instruction in social studies, the subjects were administered the delayed measures.

Notetaking/outlining group. In contrast, the notetaking/outlining group followed the same procedures in lesson format and materials but with instruction in using notetaking and outlining strategies instead of mnemonic keywords. More specifically, during the first week, subjects were taught notetaking and outlining strategies using researcher-prepared charts developed from a basal series not utilized by the school system (Early et al., 1983). During the second week, subjects were presented researcher-developed outlines of chapter sections during guided instruction and encouraged to generate new outlines within small groups as independent practice.

Scoring

Scoring for the immediate and delayed multiple-choice tasks included one point for a correct response, with a possible total of 14 points for each testing measure. A coefficient alpha, calculated using the Kuder-Richardson formula, resulted in a reliability coefficient of .54 for this task. On the probed recalls, one point was given for each correct answer in each of the four probes. These tasks were evaluated by indepen-

Table 1

Means (and Standard Deviations) for Immediate and Delayed Probed Recall and Multiple-Choice Tasks on the Social Studies Instructional Unit

		Immediate			Delayed	
Group	*n*	Recall	MC	*n*	Recall	MC
Mnemonic Keyword	53	2.66 (2.17)	6.50 (2.58)	50	2.66 (1.94)	6.14 (2.30)
Notetaking/Outlining	52	3.25 (2.23)	6.90 (2.39)	50	3.48 (2.24)	6.48 (2.15)

Note. Maximum score = 14.

dent judges trained in the scoring procedure. Based upon percentage of agreement, the interrater reliability was .92 on this measure. On the study strategy questionnaires, all strategies were first categorized by type and then further subcategorized by helpfulness and use.

RESULTS

To assess differences between groups after strategy instruction in social studies, a repeated measures MANOVA was conducted on the immediate and delayed probed recall and multiple-choice tasks. No statistically significant results were found on the immediate probed recall task, $F(1, 97) = 2.12$, $p < .1482$, on the immediate multiple-choice task, $F(1, 97) = 1.02$, $p < .3147$, on the delayed probed recall task, $F(1, 97) = 3.83$, $p < .0532$, or on the delayed multiple-choice task, $F(1, 97) = .76$, $p < .3846$. (See Table 1 for means and standard deviations.)

On the study strategy questionnaries, the self-reported strategies were first categorized according to type and then percentages were calculated for each method by experimental group. The initial study strategy questionnaire indicated that 83% of the mnemonic keyword subjects did not use a study method during social studies, whereas 53% of the notetaking/outlining group did not use a study strategy. The remaining subjects in both groups reported using study guides, reviewing, and rehearsal to gain knowledge in social studies.

After instruction in social studies, the majority of subjects in both treatment conditions reported adopting the taught strategy and finding it to be a useful technique to help them remember the information. A greater percentage of the subjects in the mnemonic keyword group, however, reported using that method, whereas over one-third of the notetaking/outlining group continued to use previously acquired study strategies. (See Table 2 for percentages.)

DISCUSSION

In taking into account the generalizability of the results of this study, several limitations must be considered. First, as the study extended over a 2-week period,

Table 2

Percentages of Study Strategies Reported for the Social Studies Instructional Phase

Group	*n*	Mnemonic	Notetaking	Reading	Rehearsal	Other
Mnemonic Keyword	53	85% (98%)	0%	6% (100%)	6% (100%)	3% (100%)
Notetaking/Outlining	52	0%	65% (100%)	29% (100%)	2% (100%)	4% (100%)

Note. Percentages of usefulness are indicated in parenthesis.

several subjects were absent on one or more days, and as a consequence not included in the data analysis for both testing periods. Secondly, instruction was limited to one social studies series, whereas results may differ when other content area textbooks are employed. Finally, the reliability of the multiple-choice test was low, indicating that the test itself may have affected the results.

Given these limitations, the following conclusions can be drawn. First, although no statistically significant results were found on the testing measures, the mnemonic keyword method was as equally successful as the notetaking/outlining strategy as a study technique for fourth-grade students. That is, subjects in the mnemonic keyword group scored as well on all testing measures as those subjects in the notetaking/outlining group. This indicates that when given the opportunity to study content material using the mnemonic keyword method, fourth graders would most likely remember as much information using this strategy as they would using the more familiar study strategy of notetaking/outlining.

Further, an examination of the individual reading ability levels indicates a wide range, with many subjects in both conditions reading below grade level. As previous studies (Konopak & Williams, 1988; Peters & Levin, 1986) have found similar nonsignificant results with poorer readers, the lack of statistical significance in this study is not surprising, given this wide range of ability.

Also, the analysis of the initial study strategy questionnaires provided additional insight. Although many subjects reported no study strategies prior to instruction, more subjects in the mnemonic group indicated a lack of study skills. This lack of what Pressley, Borkowski, and Johnson (1987) label "specific strategy knowledge," coupled with poor reading skills, may also have accounted for the lack of statistical significance on the posttest measures. Pressley et al. (1987) describe this condition of specific study strategy within the context of the development of imagery and mnemonic skills. They contend that good readers are capable of relating metacognitively with the text and consequently are able to determine what is important. Further, mature thinkers are more capable of integrating prior knowledge with new information, a basic premise of the keyword method.

Future research in this area of mnemonic keyword strategies could focus on the ability of subjects of various grade levels to use and consequently generate keywords and images based upon reading ability and specific study strategy knowledge. This research could address the amount of time and direction needed for young students to adopt and use mnemonic strategies as part of regular class instruction.

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A DESCRIPTIVE ANALYSIS OF GOOD READERS' AND WRITERS' CONCEPTS OF AUTHORSHIP AT GRADES ONE, THREE AND FIVE

Robert J. Nistler
University of North Texas

Rearchers such as Burke-LeFevre (1987), Ede (1985), Eisenstein (1979), and Foucault (1975) document the evolution of authorship as a concept in Western civilization. Beginning in the early Middle Ages, interactions between authors and society have served to expand, elaborate, and further define what it means to be an author. An expressive-romantic image of authorship which developed in the early nineteenth century depicts an author as isolated from the social world, a contemplative individual bowed over books, striving to get in touch with experience, truth, reality, history, or tradition.

The continued presence of this expressive-romantic image of authorship in society today exerts a great influence on instructional practice in schools (Cooper, 1986). Emphasis on writing as an individual activity has led to the structuring of assignments, courses, and methods of evaluation reflecting a tacit assumption that invention is the private, asocial act of a writer for the purpose of producing a text—an assumption which fails to acknowledge that invention is often a collaborative process (Burke-LeFevre, 1987).

In response to more traditional writing programs that promote writing as a solitary endeavor, recent research on children's written composition documents how children within a "community of authors" develop as writers (Atwell, 1987; Calkins, 1983; Graves & Hansen, 1983; Hall, 1989). The importance of such development and its relevance to current instructional practice is noted by Lamme (1989) in her claim that "One of the key facets of Whole Language instruction is authorship. As children learn to view themselves as authors, they become more aware of what authorship means" (p. 704). The Hawaii Department of Education (1985) concurs in its policy statement endorsing child authorship, saying: "Children whose writing is published see themselves as creators of ideas, as producers of language, as functioning members of the language community" (p. D5).

Adult concepts of authorship are thoroughly described in interviews with professional authors, such as those published in the seven-book series, *Writers at Work: The Paris Review Interviews* (Plimpton, 1984), as well as in autobiographical accounts of professional writers, for example, Donald Murray (1984). However, a similarly extensive body of literature describing children's concepts of authorship does not exist.

The disparities between traditional elementary school writing programs and actual authorial practices, the call by researchers to implement elementary writing programs based on real authoring experiences, the important role children's concepts of authorship play in their development as competent readers and writers, and the lack of previous research focusing directly on children's concepts of authorship led to this investigation. The research questions guiding this study were: (a) What concepts of authorship were revealed in the oral and written language of children engaged in a bookmaking task and pre- and post-bookmaking interviews?, and (b) How do these concepts differ for good readers and writers in first, third and fifth grades?

METHOD

Participants

The study was conducted during spring semester at two elementary schools in a small, middle-class, central Texas city. The building principal at each school identified two first-, third- and fifth-grade classrooms in which it was thought children were expected to do a fair amount of writing. Thirty-six students from these classrooms were selected as potential subjects based on teacher judgment and standardized test scores indicating strengths in reading and writing abilities. Because standardized test scores were not made available to the researcher, classroom teachers ranked their students according to test scores and shared those rankings with the researchers. Test score and teacher judgment rankings were weighted and combined resulting in a list of 12 good readers and writers at each grade level. A general description of participants is provided in Table 1.

Final selection of participants was dependent upon a screening interview conducted by the researcher. All 36 students were interviewed to determine their willingness to participate in the project and capability to discuss their experiences in reading and writing.

Procedures

In a manner similar to that of Emig's (1971) study of the composing process of 12th graders, data were collected throughout three phases of student participation. In Phase One a pre-bookmaking interview probed each child's perceptions of self as author and decision-maker regarding writing. Questions included: (a) Does anyone at home read books to you? About how often? (b) Does anyone at school read books to you? About how often? (c) Are you a reader? (d) Do you have some favorite books? (e) Can you name some of them? (f) Do you know what an author is? What does an author do? (g) Are you an author? [If yes] What makes you an author? [If no] Could you be an author? [If yes] What would you have to do? [If no] Why not? (h) Can you write? [If yes] What do you write? Where do you write? When do you write? What is the writing like that you do at home? What is the writing like that you do at school? (i) Who reads what you write? (j) Who makes decisions about your writing? (k) Can you give me some examples of those decisions?

In the second phase of data collection, a bookmaking activity placed each child in the position of being an author charged with the task of producing a book using writing materials supplied by the researcher. One weekend for first graders and one

Table 1

Description of Participants

Student	Ethnicity	Teacher Rating	Test Score Rank	Combined Test + Teacher Rank
First Grade*				
Classroom 1-A				
Jose	Hispanic	1		
Bob	Anglo	2		
Mary	Anglo	3		
Classroom 1-B				
Lorie	Anglo	1		
Cindy	Anglo	4		
Lisa	Anglo	6		
Third Grade				
Classroom 3-A				
Ben	Anglo	1	5	2
Miguel	Hispanic	3	3	3
Kay	Anglo	4	NA	4
Classroom 3-B				
Lynne	Anglo	1	1	1
Molly	Anglo	6	2	3
Alicia	Hispanic	3	NA	4
Fifth Grade				
Classrooms 5-A/B				
Juan	Hispanic	1	3.6	1
Joy	Anglo	3	2.4	2
Sue	Anglo	2	3.0	6
Joan	Anglo	3	2.4	7
Jim	Anglo	2	NA	8
Mae	Anglo	4	1.8	10

*Standardized tests had not been administered prior to this investigation.

week for third and fifth graders separated the time when children were informed of involvement in this composing phase and the physical act of writing.

During the bookmaking process each child worked individually on development of a written text. Over the course of one week approximately 30 minutes for writing were allotted each day. The actual use of this time and whether more was needed was determined by each writer.

Data collection concluded with a post-bookmaking interview in which each participant was asked to describe personal authoring processes and compare them to those of other authors. Questions included: (a) Go through your book page by page so you can tell me what you did on each page; (b) If you had more time, what else would you add? (c) If you had more time, would you change anything? (d) What did you do that's just like what an author does? (e) Do authors do anything that you didn't do? (f) Do authors do anything that you cannot do?

For all interviews, this structured outline of questions was a means of gathering consistent information across participants and was developed from literature on students' perceptions of reading and writing processes (Calkins, 1986; Graves, 1983; Graves & Hansen, 1983), professional authors' beliefs about authorship (Murray, 1984; Plimpton, 1984) and the researcher's earlier pilot studies exploring children's concepts of authorship. The combination of semiformal guided interviews and a performance task addressed methodological concerns for using interviews to gather data on cognitive functions as noted by Bogdan and Taylor (1975), Ericsson and Simon (1980), and Garner (1987).

Data Analysis

Data consisted of transcripts representing approximately 30 hours of interviews and dialogue with children during their writing, the students' books, and field notes describing participant composing behaviors. All data were analyzed at each grade level for what they revealed about children's concepts of authorship. Early analysis was guided by coding data according to general aspects of authorship derived from the literature (Calkins, 1986; Moffett, 1981; Plimpton, 1984). In response to research question one, narrative descriptions outlined individual and within-group concepts of authorship held by participants in this study. These descriptions, organized categorically, formed the data base for addressing the second research question regarding differences in concepts of authorship among grade-level groups. As data analyses progressed, categories for describing concepts of authorship could be subsumed under three major areas: perceptions of self as author; sense of audience, revision and editing; and authors as decision makers.

RESULTS

Perceptions of Self as Author

During pre-bookmaking interviews, 17 of the 18 children stated that authors write books. When asked if they were authors, children answered affirmatively less often for each succeeding grade level. By fifth grade, no children considered themselves authors.

In first grade 5 children considered themselves authors and justified this status in varying ways. Factors contributing to this perception were generally related to the ability to complete written schoolwork that was relatively error free, and to nonschool-based experiences writing stories, or in two cases, to writing books. An overwhelming concern for correctness accompanied children's reports of their writing when they addressed aspects of their own composing in terms of what they believed other authors might do. Of highest priority were good handwriting, correct spelling, and other mechanics of writing. First graders did have a perception that they were authors, which developed out of writing experiences, but this sense was tied to the physical or external characteristics of the production of text.

Unlike the near unanimity in first grade, only 3 of the third graders considered themselves authors, 2 because they wrote stories, and one because he occasionally assembled his stories into a book. The remaining 3 children were indecisive and could not claim full status as authors. Unlike the first graders, the third graders demonstrated a shifting emphasis from external concerns with the production of text to an internal concern with meaning. They separately noted concentration on the subject, decision making, the sense of a story, use of stylistic devices for effect, and correct punctuation. Third graders acknowledged differences between their authoring processes and those of other authors. They recognized that authorship extended beyond their capabilities to produce a book of appreciable length. However, as writers of stories or short books, they felt that they might qualify as authors.

No fifth graders believed that they qualified for authorial status, although 5 felt they could become authors by writing a book. Three children felt special training such as college was necessary for learning how to write books. The trend toward the internal aspects of writing noted between first and third grades continued into fifth grade. Fifth graders thought they were most like other authors because they thought about or planned for their writing. Five children discussed this prewriting aspect of their composing processes. Publishing and length of text were attributes of authorship that fifth graders felt separated them from other authors.

Children in this study identified authors as writers of books. Across all grade-level groups, one common theme related to children's beliefs that authors write books emerged during data analysis. The books that authors write are published, and for the most part, nearly all first, third, and fifth graders exhibit a limited understanding of the publishing process. In general, children understood publishing to involve sending books somewhere to get "checked out" and copied. In effect, publication as a means of sharing their writing was removed from children's composing processes.

Sense of Audience, Revision and Editing

Children displayed great differences in their sense of audience as it related to editing and revision processes. First graders viewed authorship as a right or wrong proposition. They displayed an awareness of an audience for their writing only to the extent that texts were prepared for evaluation, usually by teachers. This limited understanding of a relationship between author and audience restricted the range of options available during composing. In preparing their texts for reading by others, the first graders were mainly concerned with editing. They generally made changes to text immediately after a word was written and rarely reread completed text. In contrast to editing, revision remained a relatively unknown and unnecessary consideration for first-grade authorship.

Consequently, it was not surprising that similarities children noted between their own composing behaviors and those of other authors related to the correctness of texts. First graders did not demonstrate the sense of process that Graves and Hansen (1983) describe as capable of "lifting children into thinking more about information and the content and organization of what authors actually do in writing'' (p. 182). First graders involved in full authoring experiences during the Graves and Hansen study generally acquired this ''sense of process'' by the end of October. However, in April, during the time of this study, the first-grade participants' ''sense of process'' remained limited to editing concerns, at least to the degree that students regarded correctness as their teachers' criterion for evaluation.

Third graders' concepts of authorship were characterized by an understanding of the relationship between author and audience as evidenced by their use of a range of revision options. They did most revising at the word, sentence, and paragraph levels, and demonstrated a concern not only for correctness but also for the ''sense'' of what they composed by making changes that they felt would make the text more enjoyable or easier to read. Overall, third graders wrote to a wider audience than teacher, self, and family by including classmates and generalized public.

Awareness of revision, however, did not preclude a proportionately greater concern for editing. While involved in writing stories, third graders consistently reread their work, checking for errors. This editing focus was guided by a sort of inner-reader, and reportedly reflected teachers' emphases on spelling and mechanics of writing.

Fifth-grade participants displayed the broadest sense of audience. They were able to make specific references to points in their texts where they had written in a particular fashion with their readers in mind. Fifth graders tended to go beyond third graders' ''sense'' of their text to include setting and character development. To a greater extent than first- and third-grade participants, fifth graders exhibited a balanced emphasis on editing and revising. In that respect, fifth graders reflected a diminished concern, relative to other participants, for the physical appearance of their texts. All reread their writing throughout all stages of composing, revising at the word, sentence, paragraph, and composition levels. Fifth graders also exhibited a heightened awareness of multiple stages in the composing process, with half of them formally reading over their texts after they were written.

Authors as Decision Makers

Calkins (1986) describes an author as one empowered to make decisions about writing, decisions involving such things as style, audience, content, length, and fullness of development. Children in this study identified people they felt were most responsible for making decisions in their writing. Students varied in their responses by identifying one, two or three different decision makers for their writing. These responses included ''parents,'' ''teachers'' and ''self.''

At first grade, ''teachers'' and/or ''parents'' appeared in all children's responses. Although three children named themselves (''self'') as decision makers, it was in addition to responses of ''teacher'' and ''parents.'' First graders believed that decisions made in their writing were controlled by others, especially their teachers. Decisions were described as evaluative—judging the overall neatness of the text and handwriting. When children identified themselves as decision makers, they identified the same types of decisions as ascribed to their teachers: neatness and handwriting.

While composing, first graders generally exercised few options available to them as authors, possibly in part because of a limited awareness of the range of authorial options involved in writing a book, but more likely because of perceptions that authorship implied writing to do school work.

Third graders displayed a greater amount of control in the decisions made regarding their writing. The perceived role of the teacher diminished a great deal from first grade, as did the role of parents. Parents and/or teachers represented 50% (3/6) of third graders' responses, the same percentage as "self." In contrast to first-grade responses of "self" that were always accompanied by "teacher," only one child in third grade added "teacher" to his response of "self."

Unlike first graders, the third graders professing to be in control of their decision making did not focus on the physical aspects of their texts. Their reported decisions related to the sense of text, its appeal to their audience, its form and its topic. Those children reporting the teacher as decision maker showed a similar shift in emphasis from evaluative concerns regarding correctness to control of topic and form.

Third graders were becoming aware of their control over options but were not yet fully able to exercise them in practice. Three of the children expressed uneasiness and an unwillingness to handle options in topic or development of text. For 2 of these children, classroom writing experiences, as they described them, had prepared them to write only within well-defined guidelines. When that structure was removed, they struggled. Both children reported doing little or no writing outside of school, whereas the other 4 third graders described writing as a favorite leisure-time activity. Perhaps the increased opportunities outside of school for making decisions in their own writing had led the other third graders to be less dependent on external controls in their writing.

Fifth graders demonstrated the greatest awareness of themselves as decision makers in their writing, an awareness supported in options they elected while composing. In reports of decision making in their writing, parents were no longer mentioned as a factor, and the listing of "teacher" or "self" became an absolute choice. Children identified themselves as exclusive decision makers in their writing in 67% (4/6) of the responses. Discussion of their responses indicated that they perceived the greatest control over topic choice and limited control over length and form. Both children who named the teacher as decision maker cited decisions regarding the correctness of their text.

While composing, fifth graders displayed an awareness of options available for the genre in which they chose to write, distinguishing their stories by style. Awareness of a responsibility to audience led fifth graders to explore a wide variety of options for involving readers in the text. Underlying these explorations was an awareness of self as final decision maker not present in the other writers in this study.

In keeping with Calkins' statement regarding authors and decision making, this analysis of children's perceptions of decision making in their writing raises questions regarding information shared earlier regarding children's perceptions of themselves as authors. In "perception of self as author," there was an inverse relationship between author status and grade level, whereby, as grade level increased, perceived authorial status decreased. In contrast, with regard to control of decision making in writing, as grade level increased, the amount of child control of decisions increased, implying a corresponding increase in authorial status—writers empowered to make decisions.

DISCUSSION

The early school writing experiences reported by the children in this study were controlled by teachers who emphasized the physical aspects of writing. The results of this control were most evident in first graders' concepts of authorship. The classroom experiences of authoring, as described by students, had been limited to writing in which the length, topic, form, and organization were not under their control. The typical format guiding children's writing was suitably named "controlled composition."

According to Graves and Hansen (1983), "Children realize authors have options because they do the following in both the reading and writing processes: exercise topic choice, revise by choice, observe different types of composing and become exposed to variant interpretations" (p. 182). The findings of this study support this position and suggest that early writing experiences need to address aspects of composing not represented in first graders' concepts of authorship. Frequent and varied experiences with composing processes from prewriting to publishing are an avenue to developing concepts of authorship not displayed by first graders in this study.

Third- and fifth-grade students also reported limited opportunities for involvement in full authoring processes, a consequence in part of the influence of testing. The state of Texas has mandated testing of children for minimum proficiency in math, reading, and writing. The tests (TEAMS for Texas Educational Assessment of Minimum Skills) are administered annually to odd-numbered grade levels. As reported by children in this study and their teachers, much of the writing that occurred in school was modelled upon the format of the test, and according to student comments, in some classrooms "writing instruction" ceased after testing was completed. Despite teachers' recognition of children in this study as good readers and writers, writing instruction focused on "minimum skills." Ms. Reader, a third-grade teacher, commented, "It is only after four years of teaching that I have learned what skills are called for on the "TEAMS'." She noted how this knowledge has altered the focus of her writing instruction. Similarly, Ms. Brooks, a fifth-grade teacher, stated, "We are a minimum competency district. We don't have time in the day for the 'frill' of 'free writing'."

Increased knowledge about children as writers would empower teachers to rely less on the content of standardized tests for instructional direction. For example, the third-grade teachers involved in this study expressed concerns about conflicting information provided at writing workshops they attend. Ms. Sand noted that some presenters at workshops call for attention to mechanics and a finished product, while others advocate a process approach. Ms. Bing spoke of presenters in this manner: "They all say something different. Some encourage the marking of errors, while others do not." Teachers' concerns are reflected in children's reports of instructional emphases in classroom writing activities. The findings suggest a need for consistent and ongoing pre- and inservice teacher education in-process writing as well as means for dealing with the issue of standardized testing.

Participants at all grade levels in this study identified two major differences between their composing processes and those of other authors—other authors write pieces of considerable length and have their books published. For most third and fifth graders, length was a critical attribute of books by other authors, a length considered unattainable by the children. However, the writing resulting from this project proved to be children's longest, continuous pieces of writing, a finding that demonstrates children need regular opportunities to write for extended periods of time, to carry over a single project, and to develop an area of interest over time.

A number of children cited factors of solitude and uninterrupted writing time when explaining their requirements for fully involving themselves in their composing. For others, writing was more of a social act. When providing authoring experiences, sensitivity to differences in children's approaches to composing is indicated.

Few of the older participants' concepts of authorship included a perception of themselves as authors, since they felt incapable of writing "books." The differences between children's perceptions of themselves and of professional writers as authors indicates a need to provide children with numerous experiences related to authoring. Insights into authors as people and as fellow writers could be gained by extending invitations to published authors for classroom visits, writing to them, and showing examples of their work in progress. The notion of showing work in progress could also help children come to a greater understanding of revising and editing processes. Children could be reassured that work in progress is a recursive, messy and complex process, even for professionals.

Finally, the inverse relationship between perceived author status and control of decision making suggests that movement toward empowered authoring may not necessarily coincide with one's perception of self as author, but rather depend more on the number and quality of opportunities to engage in full authoring processes. The importance of involving children in true authoring experiences both at home and school is once again supported.

As an initial exploration into children's concepts of authorship, this study was necessarily limited: in scope, to those experiences related to authoring a book; in setting, to individual writing sessions; and, in selection of participants, to good readers and writers in first, third, and fifth grades. It is for future research to extend the findings of this study using alternative populations, settings and methods. From a greater understanding of children's concepts of authorship will come clearer applications for elementary reading and writing programs.

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CONSTRUCTING CONVERSATION: PEER RESPONSES TO STUDENT WRITING

Sarah J. McCarthey
Michigan State University

The literature on peer groups in writing suggests a variety of purposes for peer groups depending on teachers' and students' goals: (a) responding to writing, (b) thinking collaboratively, (c) writing collaboratively, and (d) editing writing (DiPardo & Freedman, 1988). Further, groups provide a forum for discussing the writing process, generating ideas, understanding the functions of an audience, and providing support for engaging in writing (Gebhardt, 1980). Much of the research has focused on the goals of responding to writing and editing writing. This research supports the idea that students learn about writing through talking about texts with other students. For instance, Nystrand (1986) found that students produced better revisions and reconceptualized their writing through participation in groups, while Gere and Stevens (1985) found that students attended to the actual text more than the teacher did. Groups can facilitate writing in a variety of ways especially given more structured tasks (Hillocks, 1984), whereas students arranged collaboratively can solve problems in writing (Freedman, 1987). Students as young as fourth grade can expect and receive substantive help through peer conferencing when conferences focus on improving the author's draft (Dahl, 1988).

Another line of research suggests that conversations among teachers and students about texts are not only valuable for increasing writing performance, but are valuable in increasing other forms of literacy. Tannen (1987) regards orality and literacy, speaking and writing, not as dichotomous, but rather as overlapping and intertwined. The benefits claimed for teachers and students discussing texts together include writer's knowledge becoming available in talk; the beginner's work being supported through questions, comments, and suggestions of others; and giving the beginning writer the opportunity to practice orally ways of using written language (Calkins, 1987; Florio-Ruane, 1988; Graves, 1983). Students can then transform the conversation-based knowledge and strategies into their independent writing. Additionally, students who engage in talking about their texts reveal their beliefs about literacy as well as their thought processes (Daiute, 1989).

For learning from peers to occur, students need opportunities to interact with one another. The realities of classroom life with its inequitable distribution of knowledge and authority, however, can undermine opportunities for students to understand their writing through responses from the teacher and peers (Cazden, 1986; Florio-Ruane, 1990). Traditional classroom norms limit opportunities for students to interact, with the result that peer interactions are rare. Large group instruction with the teacher in control and children working alone on individual tasks persists in most American schools (Cazden, 1988; Goodlad, 1984).

Ordinarily, teachers dominate instructional talk and control access to the floor. The teacher selects topics for discussion, asks questions to which he or she knows the answer to find out what students know about a topic, and allocates turns after students bid for the floor (Coulthard, 1977). The typical pattern of interaction is for teachers to initiate instructional talk, for students to respond, and for teachers to evaluate their responses (Mehan, 1982). The teacher, then, has the authority and control over the conversational interaction within the classroom. Children learn at a very young age that the teacher makes virtually all initiating moves and that students are expected to respond to the teacher's initiation (Willes, 1983). These norms limit opportunities for students to try out their own ideas, to confront alternative theories to the teacher's, and to respond to their peers.

Several current writing programs encourage transforming traditional patterns of teacher-student interaction into more dynamic student-centered and student-controlled interactions by creating opportunities for students to learn from one another (cf. Calkins, 1987; Graves, 1983). In these programs, teachers organize the classroom to support daily writing, publish students' work in a variety of forms, and interact with students through conferences in which they encourage children in their writing. Students choose their own topics to write about, discuss their work with peers, and share their writing in more formal settings called ''share sessions'' or whole-group response sessions.

These share sessions provide opportunities for students to participate in discourse that enables students to confront alternative ideas, to enact complementary roles, to have a relationship with an audience, and to try out new ideas (Cazden, 1988). Share sessions differ from traditional classroom interaction in several ways. First, the goal is for students to share their written texts with others, not for the teacher to find out what children know already about a topic. Second, the share sessions are focused on the student/author who sits in a special chair designated as the ''author's chair'' and calls upon students to respond to the text (Graves & Hansen, 1983). The student/author may control topic selection by asking students for specific help on a problem the author has. Third, the teacher's role is as an additional respondent or one who takes on the role of clarification of discussion.

Research on share sessions is important because the dialogue in which students engage can provide a means of finding out what students know about text through the ways they talk about text. Research is needed to examine how students' interactions change in settings that actively seek to alter traditional norms.

PURPOSES OF THE STUDY

This study follows from previous research that highlights students' learning from one another about texts and examines student learning in a particular setting where the teacher has provided opportunities for students to interact with one another. Student learning was investigated through two questions that guided this study of one first-grade classroom: (a) How do the conversational strategies children use change over the course of a school year? (b) How does the content of what children say in the share sessions change during the course of the school year?

METHOD

Context

Students. The focus of this study was the first-grade classroom of Emily Johnson.[1] Twenty students of various ethnic backgrounds including Black, Hispanic, Asian, and Caucasian were in Ms. Johnson's classroom, located in an elementary school in the New York City Public Schools. The students were not grouped by ability for instruction, but were provided whole-group instruction, small heterogeneously grouped instruction, or individual instruction during writing time.

Teacher. Emily Johnson is an experienced elementary school teacher who has taught in the New York City Public Schools for 4 years. During the summer preceding the 1987 school year she became involved in the Teachers College Writing Project where she received extensive instruction in helping students learn to write.

Program. The Teachers College Writing Project consists of two major aspects: (a) on-going workshops including a 2-week intensive Summer Institute and 10–12 half-day workshops throughout the school year; and (b) on-site training in which a teacher-trainer demonstrates the writing process in classrooms with teachers and students. The purpose of the Writing Project is to involve students in the process of what real authors do—recording ideas, planning, organizing texts to make sense of their lives (Calkins & Harwayne, 1987). The role of the teacher is to establish a predictable structure as a vehicle for the teacher and students to interact daily about writing. The focus of this study was on one part of that predictable structure—the share sessions in which several student/authors read their pieces aloud to the whole group and the other students respond to the texts.

Classroom. Ms. Johnson's classroom is organized around a rug that occupies a central place in the room. Tables and chairs that students are free to use are situated throughout the room. Books are on display and accessible to children during the day. During writing time children may choose where to sit to write; they sit at tables, in chairs, use pillows, or sit on the floor.

Ms. Johnson calls the share sessions by announcing that it is time for students to share. The students sit on the floor in a circle around the rug. The teacher also sits on the floor. The student/author who has been designated by the teacher earlier during the writing time is called upon by the teacher to share his or her work. The student goes to the "author's chair" and reads his or her text. The student/author then calls on students who have their hands raised to respond to the text. During the share sessions, two to three students share their pieces that are either considered "finished" by the author or are still in progress.

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[1] All names of teachers and students are pseudonyms.

Data Collection Procedures

Ms. Johnson's classroom was observed three times during writing time over the course of the 1987–88 school year (October, December, and May). Each of the writing periods consisted of about 1 hour divided among a "minilesson" in which the teacher explained a concept to the students, writing/conferencing time in which students wrote and the teacher spent time with individuals discussing their writing, and the share sessions. The observations were audiotaped using a wireless microphone that the teacher wore. The observer transcribed the observations into narratives containing the actual dialogue of the members of the class. Although this study is limited by having only three data points, it has the advantage of providing data over time.

ANALYSIS

The analysis is rooted in classroom discourse theory and methodology outlined by Cazden (1986) as well as conversational analysis detailed by West and Zimmerman (1982). New categories have been generated to talk more specifically about Ms. Johnson's classroom.

Initially, several sources were used to define the unit of analysis. The idea of "speech events" defined as recurring, bounded events with a clear beginning and end with consistent rules for participation (Cazden, 1988; Hymes, 1972) was combined with the notion of "literacy events" including "occasions in which written language is integral to the nature of participants' interactions and their interpretive processes and strategies" where "participants follow socially established rules for verbalizing what they know from and about the written material" (Heath, 1982, p. 50) to form the "text/speech event" as the unit of analysis. The unit began when a student/author read his or her piece, included the conversation during his or her allotted time to read and respond, and ended with another student being called upon to "share." Several different types of analysis of each of the "text-speech events" were performed.

Establishing Categories

The conversational strategies students used and the content of students' talk were analyzed using both qualitative and quantitative analyses. Conversational strategies were divided into three categories: (a) praise, (b) asking or answering questions, and (c) challenging or defending statements. Examples of praise included statements such as "I like your story." Asking questions included examples such as "Were there little things?" whereas answering questions included responses that answered specific questions. The category of defending or challenging statements included students challenging the response of a student by giving a different opinion, whereas defending statements consisted of supplying more information or a rationale for including something in text.

The content of student responses was categorized into either (a) focus on idea or (b) focus on mechanics and logistics. The category of ideas included features of the stories such as events, characters, setting or more general concepts such as scientific concepts. The category of mechanics or logistics included attention to surface features of the text such as number of pages or logistics such as "Can I see the pictures?"

Procedures

The unit of talk that was analyzed consisted of each complete thought expressed by a student other than the actual reading of the text. Each unit was coded for both the type of conversational strategy and the type of content. Scoring was done by adding up the number of tallies in each category and dividing the number of tallies by the total number of complete thoughts to produce percentages. Interrater reliability was established through having a second rater read through each set of the transcripts from each of the three share sessions (October, December, and May) and rank each of the share sessions using the initial categories that were described. For instance, the rater ranked each session according to which session had the most focus on ideas, which had some focus on ideas, and which had the least focus on ideas. There were no discrepancies between the two raters.

The qualitative analyses focused on emergent patterns to elaborate upon, corroborate, and provide a meaningful context for the numerical data. Examples were selected from the emergent patterns to provide evidence for the results presented in the next section.

RESULTS

Table 1 shows the changes in the types of conversational strategies in which the students engaged over the course of the year. From the beginning of the year to the next two data points, a significant change occurred in the type of strategies students used. Whereas students engaged in providing generic praise, while doing very little challenging of each other in October, in May students did not engage in generic praise at all. Instead, students engaged in asking and answering questions or challenging others. A noticeable trend is the continual increase in students challenging one another or defending their own texts.

In Table 2, the trend towards students' engaging in increasingly more talk about ideas rather than mechanics or logistics is apparent. Whereas in October there was less talk about ideas than on mechanics or logistics, December's data show a greater emphasis upon ideas than on mechanics. In May, a high percentage of the talk is

Table 1

Students' Conversational Strategies

Category	October	December	May
Praise	50%	0%	0%
Question-Asking/Answering	44%	68%	55%
Challenging/Defending	6%	32%	45%

Table 2

Content of Student Talk

Category	October	December	May
Ideas	50%	68%	85%
Mechanics/Logistics	50%	32%	15%

focused on ideas in the children's texts. These trends are supported by more qualitative analyses and examples of the talk in which the teacher and students engaged.

October

In the October share session, students did not take a very active role in the discussions. The teacher did much of the talking and encouraging of student interaction, while offering her own evaluations of the students' responses. The following excerpt displays how students were relatively inactive, responding only to teacher prompting:

> Shannon: I like that story.
> Teacher: What did you like about it?
> Shannon: I like that because [it was] fun and I liked the part about being seasick.
> Teacher: Good

When examining the content of students' responses, it seems that students had not yet developed a repertoire of issues about texts to which they might respond. The students' conversational strategies consisted mainly of offering generic praise of another student's story. The sequence following Laurie's reading of her story shows another example of how students' responses consisted of praising of the story as a whole. Linda replied that it was a "nice" story and, when prompted, gave another general kind of answer, "I like that story."

> Teacher: Anybody want to say anything about that?
> Linda: [It was] nice.
> Teacher: Why did you think it was nice?
> Linda: I like that story.
> Teacher: Why?
> Linda: I like that part about when they went to school in the snow.
> Teacher: (to Laurie) That makes you feel happy when they tell you that about your writing, doesn't it?

Students did focus on some of the ideas that the student/author had expressed after the teacher prompted and it is clear that there was some attention to the ideas within the story. However, students tended to focus their responses on logistical types of issues as illustrated in the responses to Jack's story:

> Cathy: Did you do all the pages? All the pages in the book how come you only read [a few]?
> Jack: (does not respond)
> Teacher: Is it finished yet, Jack?
> Jack: I think I can make another page tomorrow.

In this response both the teacher and the students seemed concerned with such issues as the number of pages in the story and whether the piece was finished.

December

In December, there seems to be a shift in the student's role during the share sessions. It was the student/author who was in charge of turn-taking and responded to what she felt was important. The following discussion took place after Emily read her story about summer.

Emily: (reads her text) The summer. I live in this house. I live in this house in the summer. This is the house where my little. . . . I have a little shelter in the woods. Hi ho hi ho hi ho. This is my rabbit and he goes tweet tweet tweet. This is the biggest rabbit . . . rainbow. This is Jennifer and Douglas walking in the park. This is Jennifer and Douglas going to the park. One day Jennifer the boy and the girl went to the park.

Students: (make noises)

Emily: Not Jennifer and Douglas. It is another one (continues reading). One day the boy and the girl went to the park.

Teacher: Comments? Questions? Only people with hands up are called on, should be talking.

(Emily calls on Ron.)

Ron: [Why] were there little things?

Emily: It was summer.

Ron: I know. Were there little things?

Teacher: I know what you mean. Everything she wrote about was little. Snails and what else?

Ron: Rabbits.

Teacher: Let her comment on that, please

Emily: Everything is little because if I made them big, I wouldn't fit everything in, right? This is a folded paper.

Rick: I think you have too many staples.

Teacher: There are a lot of things to say, but let Emily call on you.

Alison: Why didn't you say kissing? It was Tina and Matt.

Teacher: Other questions?

Juanita: How come tweet, tweet, tweet?

Emily: The rabbit didn't go tweet, tweet, he went ha ha. It was a bird that went tweet, tweet and his name was tweet, tweet. And there was a rabbit who went Hi-o. Raise your hand if you want to ask me his name.

Teacher: That is a good question. I want to see what it has to do with the rest of the story.

Emily: I wanted to.

Jason: Is Tina and Matt . . . why did you pick them?

Emily: Because it was a boy and a girl and I didn't want to get anybody excited.

In the December excerpt, the students' voices were much more apparent. Ron had two opportunities to ask his question of "Were there little things?" and participated in the dialogue by responding that there were "rabbits" when asked by the teacher. The student/author's voice came across more clearly as well. She had several opportunities to explain why she included certain aspects in her text such as "If I made them big, I wouldn't fit everything in, right?" and she had the opportunity to explain that "the rabbit didn't go tweet, tweet, tweet." She defended choosing the characters she did by saying, "Because it was a boy and a girl and I didn't want to get anybody excited."

These examples provide evidence that students were taking a greater role in share sessions.

A change occurred in December in the nature of the content of what students said and to what they attended in the texts they heard. In the December share session, students asked more questions that were related to the text such as, "Were there little things?" and "Why didn't you say kissing?" or "How come tweet, tweet, tweet?" Of the seven student responses, only one was about a logistical or noncontent related issue, "I think you have too many staples." The other responses had to do with characters in the story such as "It was Tina and Matt" or questions asking about the inclusion of certain elements.

The student/author was able to provide a rationale for what she included in her text. She provided details and seemed to take the questions seriously. Unlike the October session, students did not just provide generic praise, but rather tried to understand what the author was trying to say. Since there seemed to be many places in the text that were unclear to the audience, the respondents did seem to show a genuine interest in understanding the text. The December sessions shows that students were beginning to ask for explanations about others' texts and were beginning to challenge why student/authors may have included certain aspects in their texts.

In general, the talk among students appears to have more complexity than in the October session. Students seemed to be trying to respond to the content of the text and were less focused on logistics such as numbers of pages in the stories.

May

In the May session, students took an even more active role as participants by challenging one another. The following sequence after Shelley reads her story demonstrates an example of students' focusing on ideas and being willing to challenge and defend ideas expressed in the texts and in subsequent talk.

Shelley reads her story. "This is a song. Rain rain, go away. Rain, rain, go away, come back another day. I don't like the rain. Do you know why I don't like the rain? Because the rain gets in your face. I like the sun. Do you know why I like it? It's because it does not, does not get in your face." [when another student interrupts] I'm not finished . . . .

Teacher: OK. Now thinking about Shelley's question that she had of you, let's see if your questions can help Shelley.

Billy: How come you say rain can get in your face and sun can't get in your face?

Shelley: It can't, but it doesn't come in your eyeball.

Billy: Because the sun can go down, because it still can come down. It gets on you like just . . . it can only like vanish . . . . Anytime I look . . . [when a student tries to interrupt] Wait I'm not finished.

Teacher: Well, what do you think Billy is saying?

Joshua: I think he said in the night the sun don't come up.

Billy: I said the sun can come, the sun can come down, but it can come up.

Shelley: But it can't come down like the rain comes.

Billy: I know that but rain hits water. Rain is . . . .

Teacher: I think what she's doing, Billy. I think she has two different things, and I think that she is comparing the two. Do you see how she is comparing the two? She's saying how she doesn't like the rain and the reason she doesn't like it is because it can get in her face. She likes the sun and the reason she likes the sun is because it doesn't come down and touch, get in her face. It can. You can feel the heat. Is that what you are talking about?

Billy: Yeah, and it feels like . . . .
Teacher: And it hurts your eyes. Yeah, but she means really come down, Billy, and touch you.
Billy: Like it rain . . . .
Teacher: OK, Billy, you talk to Shelley about that later about this. Maybe in writing tomorrow, but right now there are other people that need to talk to Shelley.

In this excerpt, the student/author seemed to be able to explain what she meant in her story. The student/author's authority was challenged, however, by the student, Billy, who persisted in suggesting that the sun "can come down" and "get on you like [the rain]." The teacher encouraged the students to try and explain their conflicting positions. Billy persisted in his reasoning, whereas Shelley continued with her explanation about the differences between the sun and the rain.

The content of what students discussed in May reflected students taking a more active role in the discussions. The focus of the interaction was on a more general idea in the text—whether you could really feel the sun on your face in the same way that you can feel rain. There was no specific praising of ideas or parts of the story, and little emphasis on surface features such as number of pages. Instead, the students were struggling with a concept as well as trying to understand the meaning of the text.

Whereas early in the year students generally made comments about the whole story, and in December, students asked more questions and probed the specific content of the text, in May there was a real dialogue among members of the group with argumentation and an attempt at explanation. At least one student was challenging and refuting the idea implicit in the text. There was a lack of clarity at several points in the conversation as the students grappled with the idea of whether the sun and the rain are felt in the same way. The conversation seemed to move from comparing the sun and the rain to a discussion about the rising and setting of the sun, perhaps because of the use of the words "come up" and "come down."

As the students engaged in discussion precipitated by the question, "How come you say rain can get in your face and sun can't get in your face?" the interaction became complicated. For instance, when one student was asked to rephrase the boy's question, he says, "I think he said in the night the sun don't come up" indicating a possible misunderstanding of Billy's question. The conversational data suggest that the ideas and discourse itself are more complex in the May interactions. This discussion also highlights the overlap among understanding concepts, talking about texts, and the texts themselves.

DISCUSSION

By comparing the October, December, and May interactions of students within the share sessions, shifts in several areas seem to emerge during the course of the school year. Whereas students were not very active in the beginning of the year, different members of the class were in control at different moments in time in the May session. Increased student participation was reflected by the changes in conversational strategies. There seemed to be an increase in challenging and defending ideas and a sharp decrease in using generic praise. In terms of content, students seemed to focus increasingly on the ideas of the texts, rather than on surface features. Discussions began to focus on concepts and ideas expressed in texts near the end of the year.

However, the classroom share sessions did not undergo a complete transformation in which students learned to become completely self-sufficient during the share sessions. Although the dialogue became richer and more complex while focusing on ideas later on in the year, it was not clear if students really understood and developed the ideas of others. Students did respond and challenge ideas, yet students did not necessarily build upon one another's ideas in a traceable pattern. These limitations may reflect the difficulty of engaging young students in rich, complex, and sustained dialogue.

For students to learn to engage in complex dialogue to learn from one another, it seems apparent they will need many more opportunities in a variety of contexts to become accustomed to responding to their peers. It is hopeful to note that at least in one classroom, during writing time, students had opportunities to engage in rich discourse about texts and seemed to have benefited from these discussions.

Because this study was limited to three share sessions in one school year, it seems that future research could extend and elaborate upon the changes discussed in this paper. Many more examples of share sessions are needed in other classrooms to provide additional data of student learning when students have the opportunity to engage in discussion of text. In addition, it seems that an important contribution of future research would be to examine what individual students learn from these share sessions.

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EARLY LITERACY STRATEGIES: ACTIVITIES REPRESENTED IN CURRENT BASAL READERS

Lesley Mandel Morrow and Rachel Parse
Rutgers University

For more than 150 years basal readers have been the most commonly used instructional materials in American elementary education, estimated to be in use in at least 95% of the schools (Farr & Roser, 1979; Yarington, 1979). Increasingly, basal programs are being adopted for kindergartens as well.

In their *Report Card on Basal Readers* (1987), Goodman, Shannon, Freeman, and Murphy place the basal within its twentieth century context. Relying on Thorndyke's Principles of Learning plus scientific management techniques of the 1920s, they report, publishers created "a sequential, all-inclusive set of instructional materials [capable of teaching] all children to read regardless of teacher competence and regardless of learner difference" (p. 133). Teachers in the 1920s had little professional preparation and even less access to scientific knowledge of the processes of reading and writing. By contrast, teacher education programs today are quite sophisticated and provide this information. Coupled with current notions of empowering teachers to make primary decisions about instruction, it is logical to ask to what extent basals continue to rely on prescriptive structures, and to what extent they reflect research on literacy development that has been reported in the past 20 years.

A number of arguments support the use of basals: Their reading selections tend to be of high quality; teachers' manuals suggest systematic instruction; materials are based on scientific descriptions of the reading process (Shannon, 1983a). On the other hand, teachers find it difficult to choose from the many activities suggested without deviating from the basal programs' scope and sequence charts, and several studies found administrative constraints on teachers so demanding that some teachers followed manuals to the letter, simply to protect their jobs (Duffy, Roehler, & Putnam, 1987; Shannon, 1983b, 1987).

Halliday (1975) proposes that it is the functional use of language that motivates language development. Some critics charge that, within the context of basal readers, the function of text is often lost to reading readiness and skill orientation which tends to separate words from meaning (Goodman et al., 1987; Morrow, 1989). It has even been suggested that reading readiness programs in particular are theoretically and practically inconsistent with the way young children learn to read (Teale & Sulzby, 1987).

Early Literacy and Basal Readers

Research in cognitive development and language acquisition has changed attitudes and ideas concerning literacy development. The concept of emergent literacy (Clay, 1966) suggests that children acquire some knowledge about reading and writing long before formal education begins. Literacy development begins early in life, in dynamic, interactive relationships among communication skills (e.g., reading, writing, speaking, and listening) and within social contexts (e.g., family, community, sibling and peer relationships), whether or not those skills are fully developed or entirely conventional (Teale, 1982). A child's scribble writing, narration of a story from illustration, attention to page sequence, awareness of left-to-right progression, and differentiation of voice tones to distinguish between conversation and "reading" all are evidence of emergent literacy (Sulzby, 1985; Teale & Sulzby, 1987).

By contrast, basal reading programs have tended to rely on three primary assumptions about reading readiness: (a) that a child has no prior knowledge of language; each letter and story is introduced as if the child is completely unfamiliar with it, (b) that literacy develops through rote repetition and drill, and (c) that reading acquisition is essentially a structured, hierarchical process which moves from letters to words to sentences and paragraphs (Hiebert & Papierz, in press). A report for NCTE's Commission on Reading stated that "the sequencing of skills in a basal reading series exists not because this is how children learn to read, but simply because of the logistics of developing a series of lessons that can be taught sequentially day after day, week after week, year after year" (Weaver & Watson, 1988, p. 1).

Given the fact that basals play such an important role in reading instruction and more of a role than ever before in early childhood education, it is essential that findings from recent research be incorporated into basal materials. Researchers in early literacy suggest that to become literate, young children must learn the functional uses of literacy, plus concepts about books and print (Clay, 1985; Lomax & McGee, 1987; Sulzby, 1985; Hiebert, 1981); that recognizing letters and words includes phonemic awareness, grapheme-phoneme correspondence, and decoding and encoding strategies (Lomax & McGee, 1987; Mason & McCormick, 1979); that both listening and reading comprehension follow from an understanding of language (Dyson, 1984; Morrow, 1985; Sulzby, 1985); that emergent literacy includes composition and writing (Clay; 1985; Ehri, 1989; Harste, Woodward & Burke, 1984); and that the accomplishment of these goals takes place in environments rich in literacy materials that foster interest in reading and the opportunity to engage in and learn recommended strategies for literacy development (Morrow, 1982; Morrow & Weinstein, 1982; 1986).

A study by Hiebert and Papierz (in press) of 1988 editions of kindergarten basal materials noted that although many studies have dealt with content issues concerning basal materials for first grade on, none had dealt with kindergarten materials. The study reported here was an attempt to determine to what extent current basal readers include accepted traditional *as well as* newer strategies that have been determined over the past 20 years to promote literacy development in early childhood. More specifically, the study asked: (a) With what frequency do current and traditional strategies for early literacy development appear in lesson plans for kindergarten and first-grade basal materials? and (b) Are there differences in the frequency and suggested use of such elements between the main lessons and supplementary sections of the teachers' manuals?

METHOD

Materials

The kindergarten and first-grade books from six sets of 1989 basal readers, chosen for their widespread use, were selected for analysis. Kindergarten kits were not included. Because the publishers' separate descriptions of their programs were quite similar, the gist for all six is paraphrased here:

> The reading program combines aspects of a literature-based, whole language, meaning-oriented approach that encourages critical thinking. The series uses themes with activities that utilize reading, writing, speaking, and listening to motivate interest. Selected lessons in phonics are provided to help the student become an independent reader.

In their program descriptions, two of the publishers emphasized a skills approach more than did the others.

Procedure

Research assistants analyzed lesson plans for all 506 stories in the 59 books included in the study. They identified the number of times the lesson plans suggested activities that have been found to promote early literacy development, more specifically: (a) comprehension development, (b) concepts about books and print, (c) language development, (d) rich literacy environment, (e) reading attitudes and independent reading, (f) word recognition skills and phonemic awareness, and (g) writing development. Within each of these major categories were numerous subcategories which researchers have found vital. The list was composed from an extensive review of research in emergent literacy over the past 20 years (see Table 1).

Activities found in the main portions of lesson plans were coded separately from those found in supplementary sections of manuals. Supplementary sections had different labels from publisher to publisher, for example, enrichment, whole language activities, optional lessons, and so forth. For purposes of the study, ***supplementary*** was defined as lessons not required within the program at hand. Elements occasionally fit into more than one category and were therefore counted in both.

During practice sessions, the 12 research assistants analyzed manuals, familiarizing themselves both with the manuals and the elements to be identified. Reliability among the 12 was determined by asking each to analyze the same lesson plan for each of the six series at each grade level, kindergarten and first grade (a total of 12 selections for each assistant). Calculations indicated the following reliability quotients: comprehension development, 90%; concepts about books and print, 88%; language development, 85%; reading attitudes and independent reading, 93%; rich literacy environment, 94%; word recognition and phonemic awareness, 88%; writing development, 90%.

Table 1

List of Strategies Select for the Basal Reader Analysis With Their Associated References

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Comprehension Development

Literal, inferential, and critical activities; pre- and post-story discussions; repeated readings; retelling stories with or without pictures or props; shared book readings; small group book discussion; use of setting, theme, plot episodes, resolution (Anderson, Mason, & Shirley, 1984; Bower, 1976; Crowell & Au, 1979; Morrow, 1984, 1985, 1987; Teale, 1982; Teale & Sulzby, 1987).

Concepts About Books and Print

Attempted readings focusing on illustrations and print; asking child how one begins to read; connecting oral and written language; differentiating print from pictures; differentiating words and letters; figuring front, back, top, bottom of book; relating print and pictures; talking of title, author, illustrator; tracking print; turning pages; using environmental print; wondering what books are for (Clay, 1979; Combs, 1987; Mason, 1980; Morrow, 1987, 1989; Sulzby, 1985; Tovey & Kerber, 1986).

Language Development

Following directions; speaking in sentences; seeing syntax; tying language to meaning and function; vocabulary development (Dyson, 1984; Halliday, 1975; Morrow, 1989; Smith, 1973; Taylor, 1983).

Reading Attitudes and Independent Reading

Checking out books from classroom library; children reading to each other; children sharing reading; content activities related to literature; cooking with books; involving parents in reading program; literacy in play; literature selections in basal; literature used for skill development; recreational reading time; storytelling; teacher reading to children; teacher reading to self in school; using predictable elements (rhyme, repetition, familiar sequence, cumulative patterns); using school library (Anderson, Wilson, & Fielding, 1985; Bridge, 1982; Cullinan, 1989; Greaney, 1980, Holdaway, 1979; Morrow, 1982; Morrow & Weinstein, 1986; Stewig & Sebesta, 1978).

Rich Literacy Environment

Book checkout system; book-making materials; feltboard and felt stories; literacy center (library corner and writing area); multiple copies of books; open-faced bookshelves; pillows; READ posters; rocker; roll movies; taped stories and headsets; varied types of literature (Big Books, biography, concept books, fables, fairy tales, informational books, magazines, newspaper, novels, picture story books, poetry, realistic books, song books, and wordless books); writing materials (Bissex, 1980; Goodman, 1984; Hiebert, 1981; Holdaway, 1979; Ingham, 1981; Morrow, 1984; 1985; Morrow & Weinstein, 1982; Teale, 1978).

Word Recognition Skills and Phonemic Awareness

Blends; digraphs; environmental words; final consonant sounds; identification of letters; initial consonant sounds; rhyme; sight words; syllables; syntax; visual and auditory discrimination; vowels; word families; word taught through context (Hiebert, 1981; Juel, 1990; Lomax & McGee, 1987; Mason & McCormick, 1979; Mason & Steward, 1990; Schickedanz, 1989; Sulzby & Teale, in press).

Writing Development

Children sharing writing; conferences; copying; editing; functional writing; invented spelling; pre-writing discussion, recreational writing time; revision; story dictation; use of experience charts; using writing folders; writing stories (Clay, 1975; Dyson, 1984; Ferreiro, 1978; Harste & Burke, 1980; Hiebert, 1981; Morrow, 1989; Sulzby, 1986).

Table 2

Frequency of Occurrence—Elements of Comprehension

	Kindergarten			1st Grade		
	Main	Suppl.	Total	Main	Suppl.	Total
Retell Story: Pictures Or Props	12.18	4.27	16.45	10.71	11.17	21.88
Retell Story: No Pictures	9.27	4.83	14.11	11.50	10.95	22.45
Pre-Story Discussion	20.34	6.50	26.84	16.00	12.83	28.83
Post-Story Discussion	25.21	3.00	28.21	43.67	23.31	66.98
Setting	12.83	6.42	19.25	11.83	8.50	20.33
Theme	6.83	1.25	8.08	17.67	7.33	25.00
Plot Episodes	8.50	3.42	11.92	11.17	6.17	17.33
Resolution	3.17	1.25	4.42	12.50	6.67	19.17
Repeated Readings	21.68	2.27	23.94	20.50	10.53	31.03
Shared Book Readings	2.80	7.83	10.63	16.67	11.55	28.21
Narration	8.33	2.83	11.17	14.92	11.08	26.00
Literal Activities	81.83	11.67	93.50	81.89	34.67	116.55
Inferential Activities	68.50	25.55	94.05	63.63	34.17	97.80
Critical Activities	38.56	23.17	61.73	40.89	12.67	53.55
Small Group Discussion	8.92	6.83	15.75	27.39	10.33	37.72
Totals	328.95	111.09	440.04	400.92	211.93	612.85

RESULTS

Comprehension Development

Table 2 presents the frequency of elements in comprehension development and its subcategories. Generally, these elements appeared more frequently in first-grade books than in kindergarten and in main lesson plans than in supplements. Literal and inferential questions were the most frequently used categories and outnumbered critical or applied questions throughout. While pre- and post-story reading discussions were suggested a great deal, the following techniques were suggestd less frequently: story retelling, attention to story structure (setting, theme, plot episodes, resolution), shared book readings, narration, repeated readings, and small group discussions.

Concepts about Books and Print

Table 3 presents the frequency of elements that concern concepts about books and print. Elements in this category appeared for the most part more often in first-grade books than in kindergarten and in main lesson plans than in supplements. Elements appearing most frequently were relating print to pictures and discussion of story titles, and those appearing less frequently were attention to book elements such as front, back, top, bottom, differentiation between print and pictures, discussion of illustrators, page turning, directionality, connections between oral and written language, differentiation of words from letters, environmental print, attempted reading, and asking children how they learn to read.

Table 3

Frequency of Occurrence—Concepts About Books & Print

	Kindergarten			1st Grade		
	Main	Suppl.	Total	Main	Suppl.	Total
Discuss What Books Are For	6.83	0.00	6.83	6.98	8.90	15.88
Front, Back, Top & Bottom	4.50	0.75	5.25	4.42	2.08	6.50
Differentiates Print & Picture	7.50	1.00	8.50	6.75	6.17	12.92
Print And Picture Related	12.75	4.00	16.75	19.75	5.11	24.86
Title	13.85	3.42	17.27	21.55	5.50	27.05
Author	3.10	0.00	3.10	12.46	5.67	18.12
Illustrator	3.17	0.00	3.17	8.75	4.83	13.58
Page Turning	7.50	0.50	8.00	6.67	0.00	6.67
Where to Begin Reading	5.50	0.00	5.50	8.67	0.00	8.67
Read Left to Right	6.91	5.00	11.91	10.67	1.67	12.33
Tracking Print	4.00	3.11	7.11	10.29	4.50	14.79
Connections Between Oral & Written Language	5.25	4.11	9.36	7.00	3.83	10.83
Differentiates Words & Letters	5.33	5.83	11.17	10.67	3.83	14.50
Uses Environmental Print	5.27	5.00	10.27	6.58	3.62	10.20
Attempted Reading—Illust	8.56	2.08	10.64	10.00	5.96	15.96
Attempted Reading—Print	6.60	7.50	14.10	7.12	7.46	14.58
Asks Child How One Reads	0.00	0.00	0.00	1.50	0.00	1.50
Totals	106.61	42.30	148.91	159.82	69.12	228.94

Language Development

Table 4 presents the frequency of elements concerning language development. Frequencies were greater in first-grade books than in kindergarten for all elements in this category and in main lesson plans than in supplements. Most frequent were items concerning vocabulary and following directions. Second most frequent were speaking in sentences and relating language to meaning. Least frequent were items concerning syntax and relating language to function.

Table 4

Frequency of Occurrence—Language Development

	Kindergarten			1st Grade		
	Main	Suppl.	Total	Main	Suppl.	Total
Vocabulary	64.25	44.33	108.58	75.47	67.13	142.59
Follows Directions	52.84	19.50	72.34	62.25	32.41	94.66
Syntax	9.89	6.00	15.89	27.78	26.20	53.98
Speak in Sentences	42.73	21.83	64.56	43.67	26.59	70.26
Tied to Meaning (Units)	35.77	20.00	55.77	29.25	36.42	65.67
Tied to Function	26.03	8.67	34.70	28.08	19.66	47.75
Totals	231.52	120.33	351.85	266.50	208.41	474.90

Table 5

Frequency of Occurrence—Reading Attitudes and Independent Reading

	Kindergarten			1st Grade		
	Main	Suppl.	Total	Main	Suppl.	Total
Recreational Reading time	0.00	5.33	5.33	8.90	17.00	25.90
Teachers Read to Children	27.17	20.83	48.00	22.42	19.50	41.92
Children Share Reading	2.67	2.44	5.11	8.28	14.34	22.62
Keep Track of Books Read	2.67	0.00	2.67	1.67	1.50	3.17
Content Activities Related to Lit.	10.70	33.55	44.25	20.18	35.50	55.68
Check Out Books	0.00	1.00	1.00	1.67	3.13	4.80
Use School Library	2.00	3.67	5.67	6.67	9.50	16.17
Storytelling	5.36	8.50	13.86	7.02	8.85	15.87
Read to Each Other	1.83	2.58	4.42	8.67	10.23	18.90
Cook with Books	0.00	3.17	3.17	1.50	3.17	4.67
Predictable Elements Used: Rhyme, Cumulative Patterns Repetition, Familiar Sequence	11.51	4.67	16.17	18.08	3.33	21.42
Number of Literature Selections	7.83	20.44	28.27	11.88	28.83	40.72
Literature for Skill Development	17.83	9.16	26.99	25.50	16.86	42.36
Literacy in Play	4.83	4.10	8.93	6.50	8.15	14.65
Teacher Reads in School	0.00	1.50	1.50	5.25	5.00	10.25
Parents & Reading	2.00	5.50	7.50	6.00	9.00	15.00
Totals	96.40	126.44	222.84	160.18	193.90	354.08

Reading Attitudes and Independent Reading

Table 5 presents the frequency of elements that concern independent reading and attitudes about reading. Frequencies were greater in first-grade books than in kindergarten, although many of the elements in this category appeared more frequently in supplementary sections than in main lesson plans. Most frequent activities were teachers' reading to students and activities that related to literature, with skill development next in frequency. Less frequently suggested were recreational reading, book sharing, and storytelling, among others.

Rich Literacy Environment

Table 6 presents the frequency of elements that concern a rich literacy environment. Frequencies were greater in first-grade books than in kindergarten and in supplementary sections than in main lesson plans. Most frequently suggested were the use of taped stories and headsets, bookmaking materials, and, in first grade, reading posters. Different types of literature appeared far more frequently in first-grade books than in kindergarten. Genres most represented were picture story books and poetry, followed by fairy tales, informational literature, Big Books, fables, and realistic books.

Table 6

Frequency of Occurrence—Rich Literacy Environment

	Kindergarten			1st Grade		
	Main	Suppl.	Total	Main	Suppl.	Total
Literacy Center (Library Corner & Writing Area)	0.00	3.00	3.00	2.50	3.33	5.83
Book Check-Out System	0.00	0.00	0.00	0.00	0.58	0.58
Open-Faced Book Shelves	0.00	0.00	0.00	0.83	0.83	1.67
Multiple Copies Of Books	0.67	0.00	0.67	1.50	2.08	3.58
Feltboard & Felt Stories	1.33	4.33	5.67	1.50	4.67	6.17
Roll Movies	0.00	1.33	1.33	2.17	1.33	3.50
Taped Stories & Head Sets	5.67	10.01	15.67	2.10	7.42	9.52
Pillows	0.00	0.00	0.00	1.83	0.00	1.83
Rocker	0.00	0.00	0.00	0.17	0.00	0.17
Read Posters	1.33	7.17	8.50	5.36	6.00	11.36
Writing Materials	0.33	7.83	8.17	4.67	4.50	9.17
Book Making Materials	2.43	8.93	11.37	4.50	6.33	10.83
Types of Literature						
Big Books	4.39	2.83	7.23	4.05	6.33	10.39
Biography	0.33	0.00	0.33	0.83	0.83	1.67
Concept Books	0.00	3.58	3.58	2.67	4.78	7.45
Fables	1.67	4.50	6.17	5.00	4.17	9.17
Fairy Tales	5.33	5.33	10.67	5.67	10.63	16.29
Informational	0.50	7.07	7.57	4.30	9.24	13.54
Magazines	0.00	1.50	1.50	0.00	8.67	8.67
Newspapers	0.00	0.50	0.50	0.00	6.33	6.33
Novels	0.00	1.33	1.33	0.00	1.67	1.67
Picture Story Books	8.39	13.50	21.89	12.54	10.50	23.04
Poetry	7.07	12.33	19.41	12.39	12.66	25.05
Realistic	0.33	3.67	4.00	5.72	7.73	13.44
Song Books	0.50	1.17	1.67	1.58	2.50	4.08
Wordless Books	1.67	1.83	3.50	1.50	2.29	3.79
Totals	41.95	101.76	143.71	83.37	125.41	208.78

Phonemic Awareness and Word Recognition Skills

Table 7 presents the frequency of elements that concern phonemic awareness and word recognition skills. Frequencies were greater in first-grade books than in kindergarten. Visual and auditory discrimination, environmental sight words, identification of letters, and rhyme, however, appeared more often in kindergarten books. Most elements appeared more often in main lesson plans than in supplementary materials. Most frequently suggested elements within the kindergarten materials concerned letter identification, initial consonant sounds, and visual discrimination, and, within the first-grade texts, initial consonant sounds, vowels, identification of letters, blends, and final consonant sounds.

Table 7

Frequency of Occurence—Word Recognition and Phonemic Awareness

	Kindergarten			1st Grade		
	Main	Suppl.	Total	Main	Suppl.	Total
Auditory Discrimination	25.60	20.71	46.31	7.34	8.56	15.90
Visual Discrimination	45.67	24.59	70.26	9.33	7.52	16.85
Sight Words	34.98	19.00	53.98	47.18	19.20	66.38
Environmental Sight Words	8.50	6.17	14.67	7.25	2.50	9.75
Identification of Letters	71.77	25.71	97.48	60.83	24.08	84.92
Initial Consonant Sounds	64.34	25.51	89.85	72.83	26.51	99.34
Final Consonant Sounds	23.00	3.33	26.33	48.17	25.89	74.06
Vowels	15.00	1.33	16.33	51.17	46.25	97.42
Blends	14.17	0.50	14.67	40.84	39.08	79.93
Digraphs	4.17	1.33	5.50	31.42	23.03	54.45
Word Families	9.17	1.58	10.75	22.67	18.33	41.00
Rhyme	14.88	19.00	33.88	15.71	15.27	30.98
Syntax	22.33	4.08	26.42	39.83	31.00	70.83
Syllables	0.00	0.00	0.00	13.00	14.17	27.17
Words Taught with Context Clues	23.73	33.33	57.06	32.87	29.47	62.33
Totals	377.30	186.18	563.48	500.44	330.86	831.30

Writing Development

Table 8 presents the frequency of elements that concern writing. Generally, frequencies were greater in first-grade books than in kindergarten, and for the most part in supplementary sections than in main lesson plans. Most frequently suggested in kindergarten materials were writing stories, story dictation, and the use of experience charts, and, in first grade, writing stories, story dictation, and shared writing.

Summary

Table 9 summarizes the results of all analyses represented above. Generally, in both first-grade and kindergarten books, greatest frequencies were given to word recognition and phonemic analysis, comprehension development, and language development, in that order. In all three categories, more emphasis was placed in first-grade books than in kindergarten, and on elements in main lesson plans than in supplementary sections. Next most frequent were elements in writing and in reading attitudes and independent reading, more often in supplementary sections than in main lesson plans, and in first-grade books than in kindergarten. Least frequently suggested were concepts about books and print, and rich literacy environment, the former more often appearing in main lesson plans, the latter in supplementary sections.

Pragmatically, it must be noted that teachers do not use supplementary sections often, either because of lack of time or because they feel they are not as important as main lesson plans.

Table 8

Frequency of Occurence—Writing Development

	Kindergarten			1st Grade		
	Main	Suppl.	Total	Main	Suppl.	Total
Recreational Writing Time	0.00	8.50	8.50	8.57	20.08	28.65
Writing Stories	10.67	18.89	29.56	21.70	19.01	40.72
Story Dictation	13.99	19.39	33.38	21.16	19.80	40.96
Copying	2.83	5.67	8.50	13.22	10.71	23.93
Experience Charts	13.83	9.48	23.31	12.75	8.79	21.54
Share Writing	3.83	11.25	15.08	20.27	22.27	42.55
Writing Folders	1.33	5.83	7.17	13.87	14.43	28.30
Functional Writing	5.76	2.83	8.59	10.94	18.90	29.84
Invented Spelling	1.67	8.84	10.50	8.09	13.33	21.43
Prewriting Discussion	2.17	6.50	8.67	19.12	16.92	36.03
Revision	0.00	3.50	3.50	16.04	9.00	25.04
Conference	0.00	3.00	3.00	17.89	8.00	25.89
Editing	0.00	1.67	1.67	14.78	9.30	24.09
Totals	56.1	105.4	161.4	198.4	190.6	388.9

DISCUSSION

Results of the study indicate that the basals analyzed do incorporate both traditional and more recently espoused strategies for developing literacy in early childhood. Such current strategies, however, as providing rich literacy environments, suggesting writing activities, promoting positive attitudes toward reading, and encouraging independent reading were not as well represented as the more traditional ones and they appeared more often as supplementary ideas rather than as main lesson plan elements. Although current concepts of emergent literacy suggest concurrent development of reading and writing, with equal emphasis on strategies for the development of both, word recognition remained the preeminent skill to be developed within the basals.

Informally, the research analysts found much to praise in the basal materials: illustrations and format were attractive and would engage most children, activities were varied and interesting; and much of the literature included was of high quality.

On the other hand, the number and complexity of lesson plans were overwhelming, prompting fears that teachers would lose sight of priorities and feel inadequate to follow every plan in all its detail. Although selections represented some of the best of children's literature, they were surrounded by numerous skill lessons so that one wonders if the joy of literature could survive.

The results of the study raise several questions about the nature and role of basal readers: (a) Should the major role of a basal remain its traditional one, to provide for the direct instruction of skills? (b) Should literature be used for skill instruction, or should it be suggested within the basal primarily for motivation for reading trade books? (c) Should basal programs remain highly prescriptive or should they evolve into process and resource guides by which teachers can design their own instructional

Table 9

Summary of Early Literacy Categories

	Frequency					
	Kindergarten			1st Grade		
	Main	Suppl.	Total	Main	Suppl.	Total
Comprehension	328.9	111.1	440.0	400.9	211.9	612.8
Concepts of Book & Print	106.6	42.3	148.9	159.8	69.1	228.9
Languange Development	231.5	120.3	351.9	266.5	208.4	474.9
Reading Attitudes	96.4	126.4	222.8	160.2	193.9	354.1
Rich Literacy Environment	41.9	101.7	143.6	83.3	125.4	208.7
Word Recognition	377.3	186.2	563.5	500.4	330.9	831.3
Writing Development	56.1	105.4	161.4	198.4	190.6	388.9

strategies? (d) Can basal materials do justice to a whole language approach, or might it more effectively be nurtured by the teacher through literacy development integrated throughout the entire school day? (e) Because they have been successful in incorporating many of the newer strategies into their materials, can basal programs in their ensuing editions continue that trend and broaden it still further? (f) Is the best basal program one that includes materials for skill development as we know them along with numerous separate paperback selections of children's literature relatively free of prescriptive instruction. The children's literature would be considered as important as the rest of the skill materials by giving equal emphasis through the time alloted for their use.

Whatever the answers to these questions, it seems obvious that any reading program in early childhood must respond with at least equal emphasis to evidence cited in behalf of emergent literacy as it does to traditional arguments for skill development. Basal publishers have the resources to make a difference. Educators and educational researchers need to make sure they send publishers the best message about how literacy learning takes place.

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TYPES OF WRITINGS INCLUDED IN BASAL READING PROGRAMS, KINDERGARTEN THROUGH SECOND GRADE: AN INVESTIGATION OF CHANGES FROM 1983 TO 1989

James Flood and Diane Lapp
San Diego State University

The types of writing that have been included in basal readers have changed throughout our history. They have changed from an exclusive collection of religious treatises to a more eclectic collection of writing types. Venezky (1987) has suggested that the types of writing in reading programs have varied depending on the historical, political, and economic constraints of the era in which they were published. Chall (1967) and Smith (1965, 1986) have also argued that the content in basals has depended on the instructional ideology of the author and/or publisher at the time of publication.

Discussions about the types of writings to be included in basal programs seem to be tied to one of three positions; these three positions often influence basal selections and reflect differences in instructional emphases within the basal programs. Proponents of the first position hold that basal readers are primarily instructional tools for teaching decoding strategies—tools to be used and then discarded when students have mastered beginning reading skills and can read "real" books. In this view, the selection and development of the content of basals are subjugated to the learning of decoding skills. Basal readers designed from this perspective often contain brief constrained texts and are quasi-literary.

The second view of the purpose of the basal reader in instruction is to introduce children to "quality" literature from their earliest years. Although those who hold this viewpoint may also believe that basal readers should include provisions for development of decoding strategies, they emphasize that basals are essentially literary anthologies and should include "proven," "quality" literature. These proponents argue that basal readers should be the textbooks for the "discipline" of literature, and that early and continuous exposure to quality literature ensures a lifetime habit of reading.

Those who hold the third view of the role of the basal in instruction believe that basal readers should offer instruction to ensure all aspects of reading competence, ranging from the ability to decode to the ability to learn from complex texts. Proponents of this view argue that reading instruction is rarely offered outside of the time designated for basal instruction. Therefore, children need to read a variety of text types, and they need to be taught the skills that they will need to comprehend content area and technical textbooks as well as literature. This position advocates that basal readers should contain a wide variety of writing types and documents (including maps, charts, schedules, diagrams, and graphs) so that children will be exposed to and will learn to read a wide variety of text types.

It seemed to us that the third view most closely matched the claims that contemporary basal designers and publishers made in their promotional materials. We collected sample statements included in teacher's manuals of widely used basal reading programs:

> . . . [contains] a variety of literary forms.
>
> . . . [offers] a variety of selections including poetry, fantasy, realistic fiction,and non-fiction.
>
> . . . [provides] a balanced representation of traditional stories, fables, folktales, fairy tales, myths, legends, fantasies, plays, songs, and poems, as well as contemporary stories and articles of various kinds.
>
> . . . [contains an] ideal balance between fiction and appropriate factual material. In addition to fiction, plays and poetry, the program contains varied and interesting materials designed to impart knowledge and help pupils appreciate good writing in all forms.
>
> . . . [includes] literature that encompasses every form of writing, from plays, folktales and poems to fascinating articles in social studies, science and other content areas.

STUDIES OF TYPES OF WRITING INCLUDED IN BASAL PROGRAMS PRIOR TO 1986

Data from investigations of basal content, however, do not support these claims for breadth. For example, two studies showed that the majority of selections in basal readers were literary, that is, stories, poems and plays (Durkin, 1981; Olsen & Dillner, 1976). Both of these studies found few expository, informational selections in basals. In fact, Olsen and Dillner found that 90% of basal selections were stories. The results of these studies, however, were disputed in a more recent study by Schmidt, Caul, Byers, and Buchmann (1984). They found that stories represented only one-third of the total selections, and that information articles accounted for the same number of selections as stories. However, these investigators examined only second-, fourth-, and fifth-grade texts, thereby rendering their data inconclusive.

A STUDY OF EIGHT BASALS, 1986

To build on this work and to address the question of the types of writing that were included in the 1983 basal reading programs, Flood and Lapp (1986) examined each book from preprimer to second reader for eight basal series published in 1983. They chose to examine these eight programs because each was approved for adoption in California and each had a comprehensive program (i.e., materials ranging from readiness level to Grade 2). The programs included: Ginn Reading Program, Harcourt Brace Jovanovich Bookmark Reading Program (Eagle edition), Holt Basic Reading, Houghton Mifflin Reading Program, Laidlaw Reading Program, Lippincott Basic Reading (Harper & Row), Macmillan Reading Series R, and Scott Foresman Reading

Program. The results from that study indicated that basal programs were still overwhelmingly literary. The total percentage of literary selections (narratives, poems and plays) was 76% (49% stories; 23% poems; 4% plays), and only 13% of the selections were specifically nonliterary (expository/information pieces). A secondary analysis of the data, counting the number of pages allotted to each type of writing, indicated that the programs were even more literary in nature than originally thought; 83% of the pages contained literary texts, only 8% of the pages contained expository/information texts.

AN ANALYSIS OF CONTEMPORARY BASALS, 1989

We decided to do a follow-up study to compare contemporary basals with the basals of 1983 to see whether basals had changed. Would they still be overwhelmingly literary? To do this, we examined eight comprehensive programs that were approved for adoption in California in 1989: (a) Harcourt Laureate Program, (b) Harcourt Imagination Program, (c) Heath Reading Program, (d) Holt Reading Program, (e) Houghton-Mifflin Reading Program, (f) Macmillan Connections Program, (g) McGraw-Hill Reading Program, and (h) Scott, Foresman Reading Program.

Method

System for classifying types of discourse. The same classification scheme as used in the 1983 study was used; it included six general categories: (a) Narrative (Fiction), (b) Poetry, (c) Play, (d) Exposition, (e) Biography, and (f) Hybrid (the form of narrative and the function of exposition).

Procedure. We determined the variety of types of writing in the 1989 basal programs by using the same two analyses that were used in 1983: first, we determined the number of selections representing the six writing types; and second, and possibly a more accurate reflection of basal content, we examined the number of pages devoted to each type of writing. It has been argued that a single measure might not accurately reflect the overall content of a particular book because it is possible that a text might contain one lengthy expository piece and five brief stories. If the first tally were used exclusively, the basal under inspection would appear to be essentially narrative; conversely, if page counts were used alone, the readers would seem to be heavily expository.

Results

The scores for the total number of selections for each type of writing included in the basal readers are presented in Table 1. The most frequent form of writing at each level was narrative, with an overall mean of 49%. Expository writings were the second most frequently included type of writing, accounting for 28% of the selections, and poems accounted for 22% of the selections.

In Table 2, the results of the comparison of the number of selections included in basal programs between 1983 and 1989 are presented. The data indicated that the programs have changed considerably since 1983.

Table 1

Number (and Percentage) of Selections of Types of Writing Included in Basal Readers (Preprimers Through Second-Grade Readers), 1989.

Type of Writing	Preprimers–First Grade	Second Grade	Total
Narrative	311 (52)	248 (45)	559 (49)
Poetry	126 (21)	123 (22)	249 (22)
Expository	154 (26)	163 (30)	317 (28)
Plays	4 (0)	5 (0)	9 (0)
Biography	1 (0)	9 (0)	10 (0)
Hybrid	3 (0)	4 (0)	7 (0)

Table 2

A Comparison of the Percentage of Writing Type Selections in 1983 and 1989 Basal Readers (Preprimers Through Grade 2)

Type of Writing	1983	1989
Narrative	51	49
Poetry	25	22
Exposition	14	28
Plays	4	1
Biography	0	0
Hybrid	4	0

The data indicated that there had been a substantial shift in the number of expository texts that were included in basal programs from 1983 to 1989. The percentage doubled (14% to 28%). However, the data from the secondary analysis, the number of pages devoted to each writing type, did not substantiate this finding. The number of pages allotted to narrative, for example, showed that the books were 72% narrative and were overwhelmingly literary: 81% (narrative, poetry, plays). (See Table 3.)

The comparison between the 1983 and 1989 programs showed that little change had actually occurred. In Table 4, the data illustrate this lack of change. The books remain more than 80% literary.

Discussion

Our inspection shows that basals are still predominantly literary, with 72% of the selections and 81% of the pages containing either narratives, poems or plays. Furthermore, we could not find in the basal manuals one consistent approach for guiding teachers in designing instruction for the different kinds of writing included in the readers. The procedures recommended were not significantly different from those recommended for most narrative stories. This is unfortunate, because there is a good deal of research indicating that the instruction in reading expository texts should be

Table 3

Number (and Percentage) of Pages Allotted to Various Writing Types in Basal Readers (Preprimer Through Second-Grade Readers), 1989

Type of Writing	Preprimers–First Grade	Second Grade	Total
Narrative	2,560 (73)	2,029 (69)	4,589 (72)
Poetry	197 (6)	151 (5)	348 (5)
Expository	547 (16)	479 (16)	1,026 (15)
Plays	105 (3)	120 (4)	225 (4)
Biography	4 (0)	48 (2)	52 (1)
Hybrid	70 (2)	100 (3)	170 (3)
Total	3,483	2,930	6,413

Table 4

A Comparison of the Percentage of Pages Allotted to Writing in 1983 and 1989 Basal Readers (Preprimers Through Grade 2)

Type of Writing	1983	1989
Narrative	73	72
Poetry	6	5
Exposition	11	15
Plays	5	4
Biography	1	1
Hybrid	4	3

approached differently from narrative texts if the interaction between the reader and the text is to be successful. Inspecting basals for genre and length of selections does not, however, address the issue of what basals should contain and why.

By referring to the three divergent positions explained earlier concerning the role of the basal instruction, we can readily admit that our research did not adequately address the first perspective—that of basals as aids to decoding—nor can it be adequately addressed without a concomitant word-level inspection. We can, however, consider the ramifications of the latter two positions: Should basals be predominantly anthologies of literature or should they represent a compendium of text types? What is a balanced presentation of text types? In what ways can children be best prepared for dealing with nonliterary texts in their basal programs?

Basals as literary anthologies. In recent years, a great deal of research has been conducted on text as a critical variable affecting comprehension. If the basal is considered to be the text that is used to teach children to read, it seems reasonable that to accomplish this task the language of the text should be presented in a format that is familiar to readers. Barlett's seminal work of 1932 demonstrated that abstract knowledge structures, which readers establish in memory through exposure to texts, enable readers to encode and retrieve information. His work was conducted with stories (narratives), and the abstract knowledge structures that he discussed were labeled schemata.

In the 1970s, several researchers developed story models for representing the underlying organization of a story that could be used to determine whether children actually had schema for story texts (Mandler & Johnson, 1977; Stein & Glenn, 1979; Thorndyke, 1977). Their findings suggested that children as young as 4 years of age have acquired knowledge of the structure of text, and they use this schematic knowledge to organize and remember information. From this data, it can be argued that the knowledge of structure enables a child to understand and recall story events.

In addition to stories, researchers have analyzed other types of writing to determine the underlying structure that serves as a schematic framework for understanding text (Berkowitz, 1986; Flood, Lapp, & Farnan, 1986; Kintsch & Van Dijk, 1978; Meyer, 1984). Meyer (1984) contends that competent readers approach texts with knowledge about the ways in which texts are conventionally organized; readers select the most appropriate schema for processing a given text. She also points out that recall is impaired if the appropriate schema is ill-formed or unavailable.

Although there is no single answer to the question of whether basals should be literary anthologies, we believe that an effective basal program should contain a balanced presentation of text types if one of the reasons for using the basal is to get students ready for other types of texts that they will be encountering throughout their school years.

A balanced presentation of text. To determine the nature of a balanced presentation of text types, it is important to consider again what the role of the basal reading program should be. Since there is no conclusive answer, we suggest that a basal should introduce students to the reading processes they will need and to the types of textual material they will be required to read throughout the curriculum. Basals should include a variety of writing types to ensure that children will be exposed to many different types of discourse. Children should learn strategies for dealing with many types of writing before they are asked to read complex content textbooks. Several researchers have argued that this early exposure is critical to later reading success (Calfee & Curley, 1984; Lapp & Flood, in press). In fact, 33 years ago, Squire (1957) argued for teaching children how to read many different forms of writing, contending that the form of a text represents the author's thinking, and that an understanding of form gives the reader the ability to relate ideas in memory.

We believe that a well-balanced basal is a composite of all of the types of writing the reader will encounter in daily school experiences. The reader should be provided with the opportunity to rehearse learning-to-read strategies with texts that are representative of those in all of the books the reader will encounter.

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READING STRATEGIES OF MARGINALLY LITERATE WORKERS: A CASE STUDY

Verna Haskins Denny
Queens College, City University of New York

The lack of adequate literacy skills on the part of an increasingly large segment of the American adult population, currently estimated to be 27 million adults nationwide (Daniels, 1988), is now considered to be one of the most important issues facing our society. Business and industry are bearing the brunt of one of its immediate and practical effects: low-level literacy skills among workers.

Yet, there has been relatively little research concerning the marginally literate worker population. This can be partially attributed to the fact that so little research has been done on adult literacy in general (Darkenwald, 1986; Parker, 1987). In addition, the specific phenomenon of low-level worker literacy and its impact remains little understood.

Adult literacy researchers have recently begun to investigate the actual levels of literacy demand imposed by various work places and whether workers perform more or less difficult tasks than the tests they are given for jobs or the school degrees that they hold would indicate they can handle. The results of research suggests that even though some workers hold jobs that demand a higher level of reading skills than they appear to possess, these workers are often able to read and understand the job-related materials their work requires (Mikulecky, 1981; Moe, Rush, & Storlie, 1979). The fact that these workers are able to perform job-related reading tasks at better than their tested reading levels has not yet been adequately explained by existing research. Little research has been done on the already existing strengths these adults bring to the reading process.

Because strategy use is considered an important variable in how well people read and do not read, and how they understand the reading process, a full explanation of the phenomenon must include an exploration of the readers' use of strategies. This paper will present a case of one such worker who participated in a study examining strategy use on job and nonjob related materials.

METHOD

Informant

Cliff Parker (a pseudonym) is one of 4 participants in the larger study who work as car cleaners for the Transit Authority of a major East Coast city. This report focuses on Cliff to provide indepth information about his reading behaviors.

On his job, Cliff cleans and does minor maintenance of subway cars usually in the subway yards. He is expected to keep current by reading all bulletins and posted materials or notices in his payroll envelope. He is expected to know his handbook completely and refer to it when necessary. It is especially important for him to know and understand pertinent safety rules and regulations as he is often in situations where safety is an issue (e.g., when carrying a pail of water across a live third rail). He is also required, at times, to fill out written report forms.

Cliff was attending an upgrading class given by his union at the time of the study. He is a native-born African American, in his mid-30s, who scored at the seventh-grade level of the Slosson Oral Reading Test (Slosson, 1963) and had been employed by the Transit Authority for 1½ years at the time of the study.

Procedure

To determine Cliff's use of strategies when reading, three measures were administered: a retrospective task, an introspective task, and an interview. For the first two tasks Cliff was given eight passages to read: four job-related passages taken intact from his manual and four nonjob related passages taken from standardized reading tests at reading levels that approximated the job passages, 10th–12th grade level and above. Two passages from each type were used for the introspective task where Cliff stopped at the end of each sentence while he was reading to talk about his reading process, and two of each type were used for the retrospective task, where Cliff talked at the end of each passage about what he was thinking or feeling while reading the passage.

Cliff's responses to these eight passages were taped and transcribed. The transcriptions were divided into response units (a unit contains one complete thought or idea) by two raters to test for reliability. There was 98.2% agreement. Each response was then analyzed for the display of strategies. Twenty-five percent of the total response units were additionally coded by a second reading specialist. Reliability was 90.6%. Discrepancies were discussed and resolved.

Tentative categories of strategies were developed based on the literature on reading and metacognitive strategies (Block, 1985; Kavale & Schreiner, 1979; Olshavsky, 1976–77) and subdivided into general and specific strategies following the model of Block's (1985) work. However, to get as complete a picture of Cliff's reading as possible, the coding system was set up to allow for the display of any other strategies that might develop from Cliff's responses.

The third measure administered to Cliff was an interview questionnaire adapted from the Paris and Meyers (1981) and Gambrell and Heathington (1981) metacognitive questionnaires and the Diehl-Mickulecky Job Survey (Diehl & Mickulecky, 1980). This measure gives Cliff's own assessment of himself as a reader.

All three measures were administered to Cliff on a one-on-one basis in four separate sessions held directly after his upgrading classes at the community college site where the classes were held. In addition, much of the information that forms the following profile of Cliff came from informal conversations either before or after sessions or during the thank-you lunch that the researcher had with Cliff. From this data an indepth picture of Cliff as an individual and as a reader was developed.

RESULTS

Cliff as a Reader

Cliff, an outgoing man, was receptive to participating in the study in spite of some initial nervousness when he talked about his reading, as well as occasional insecurities about "whether he was doing it right." His responses usually included an example or an anecdote from his experiences and throughout the study he seemed to enjoy talking about himself in this way.

Cliff considers himself only a fair reader, but he likes to read, mostly books about chess. Cliff enjoys reading both for the pleasure it gives him in and of itself and also because it gives him the information he needs to pursue and improve at his hobbies.

The environment he reads in is very important to Cliff. Cliff goes into a room by himself to read. "If I'm relaxed, maybe got, you know, a little something to nibble on, and something to drink right there, I'm comfortable . . . I like to be by myself, you know." He cannot read on the subway, but will "look at a book . . . I'll look at it, I don't really be, I don't read it, you know. It's just something where I won't have to be looking at people or something like that." Part of the reason why Cliff likes to read by himself is that, quite often, he reads out loud. Cliff says, "I may even read it to myself and then I like it and then I want to hear how it sounds. I don't know what that does."

In an informal discussion Cliff gave an example of how reading aloud helps him in reading. He talked about how much he enjoyed reading *Shogun*, (Clavell, 1977), a lengthy adult novel about Japan.

> If it grabs my, and I don't stop, it just goes on . . . *Shogun* was like that . . . I didn't read it in a night , . . . but I finished it in a sitting . . . say two, or three nights. I just sat up, I stayed up all night reading it. I'd go to work and I'd come home and I'd get right into it. My wife . . . thought I was crazy.

The revelation that Cliff had read *Shogun* was surprising. Cliff's reading assessment indicated that this book would be much too difficult for him even with his high interest in the subject matter. However, in follow-up discussions Cliff talked about his strategy for handling hard material; he locks himself in his room and reads aloud. That, he feels, is the only way he can get through many of the reading materials he is confronted with.

Cliff on the Job

Not surprisingly, this enthusiasm for reading does not continue in the work environment, a place where it is impossible for him to read under the ideal conditions he describes. When Cliff is at work, he reads the newspaper and regularly checks the bulletin boards to see if any bulletins have been issued for his department. He says that this is because he works different jobs and they each have a different schedule. He does not read his rule book or other job-related materials unless it is absolutely essential to do so. "If a bulletin comes out I would reread it, but I'm not going to go get my rule book and just read it . . . . If they want you to know anything they'll put it in the booth."

When asked how he reads the things he has to read on the job, Cliff states, "Maybe if it's something I really need to know I'll read it, reread it, maybe break it down, you know, and discuss it, maybe with my wife or with somebody, talk about it. As this illustrates, Cliff relies on other people to help him work through or bypass the literacy demands of his job.

When Cliff does need to refer to a manual, he is likely to go to the manual which is centrally located at the clerk's station, and then ask the clerk for help in understanding the manual's directions, for example, for filling out a form. He says,

> If I don't know how to fill it out, maybe she could help me fill it out . . . . The clerk is usually the one there that I can deal . . . so it's basically the clerk, they have all the information in the booth. Mostly the booth is the control area from wherever you're at.

Cliff's Use of Strategies

Cliff talked a lot during the sessions. However, only a relatively small proportion of strategies were displayed in his responses. This was because so many of Cliff's comments were tangential to the text.

Given this style, it is not surprising then that of the general strategies that Cliff used on both job and nonjob related passages, the most frequently used ones were "uses general knowledge and association" and "reacts to text" (see Table 1). As an example of "reacts to the text," from the Job 2 passage, is Cliff's comment about accidents: "Basically I was just thinking, I was wondering, it never has happened to me, and I know some people that it has happened to." An example of Cliff's use of general knowledge with regard to the Nonjob 1 passage was his comment, "I've seen articles on TV about foxes, you know, they're hunting them in California and out west and stuff, and I know they're cagey little creatures." The emphasis on these two strategies "uses general knowledge and association" and "reacts to text" seems to be in keeping with Cliff's focus on himself, his knowledge and his experiences. Although these two strategies were the overwhelming method of choice on all passages they occurred substantially more often on nonjob passages. This pattern was different from that of the other 3 study participants in the larger study who used more general strategies on their job-related protocols, presumably because their greater familiarity with the content of job-related materials enabled them to apply a broader knowledge base to these passages. Cliff, of the 4 participants, seemed to have (or at least expressed) the greatest nonjob related overall knowledge base, which may be why his pattern of response to the nonjob related passages differed so greatly.

Cliff used a variety of specific strategies on the passages he read (10 in all) such as "just reading," "paraphrase," "stating the topic or gist," "summarize" and "reread." "Just reading" was a strategy used by Cliff alone. By "Just reading" Cliff meant "just [going] through the text." "Basically I know it, it's important, but sitting here reading it I just really just went through it."

It is clear that Cliff has a lot of different strategies at his disposal, yet when asked directly in an interview question if he was aware of any reading strategies he used he stated, "I don't know how to answer that." It is also interesting to note that 10 of the 12 strategies exhibited on the introspective job-related passages were used on one passage which Cliff found difficult. This suggests that Cliff's range of strategy use increases in response to the particular challenges of a passage.

Table 1

Analysis of Strategy Use During the Retrospective and Introspective Tasks: Cliff Parker

Strategies	Frequency of Instances of Strategy Use Job Passage	 Nonjob Passage
General Strategies		
Anticipates content	6	3
Integrates information	2	1
Questions information	3	3
Uses general knowledge	12	16
Corrective behavior	1	0
Reacts to text	15	26
Stops and thinks	8	2
Specific Strategies		
Paraphrasing	4	12
Rereading	4	3
Looking ahead	2	0
Word solving behavior	1	4
Clause/sentence solving	7	7
Skimming	2	2
Summarizing	3	2
Stating topic or gist	3	0
Using title to anticipate content	1	0
Just reading	7	3

The strategy that Cliff employed also seemed to be determined by the kind of task he was confronted with. Cliff displayed two strategies on introspective tasks that did not appear previously: "anticipates content" and "integrates information."

As an example of anticipates content is Cliff's comment "It looks like some more TA rules and stuff." Cliff's use of the "integrates information" strategy is illustrated by a comment on the same passage, where he connected information from an earlier paragraph by saying, "The next paragraph just verified that." Clearly, the nature of the introspective task helped Cliff to focus his responses in a way that generated a wider range of such strategies. Having to stop at the end of each sentence helped organize Cliff and provided him with a framework for his ideas.

CONCLUSION

Cliff was able to read at a higher than expected level and to use effectively a wide range of reading strategies on both job and nonjob passages, especially on material that was difficult for him (as was the case with the other 3 participants in the larger study). Previous studies (e.g., Gambrell & Heathington, 1981) have shown that marginally literate readers do not have a command of many strategies. Interestingly though, Cliff viewed himself as a fair reader at best, apologized for using good reading techniques, (e.g., he said of rereading, "I know I shouldn't be doing that"), and was not able to answer questions about what strategies he used when reading.

Although Cliff displayed a wide variety of strategies he tended to rely on two favorites during the administered tasks (''uses general knowledge and association'' and ''reacts to the text''). Johnston (1985) found a similar pattern in his study of adult low level readers and suggests that it may be because reading is most comfortable when it can be related to what is known.

Reading is intertwined with Cliff's life because of its usefulness in the development of his hobbies and interests. Cliff manages his reading in this context by making it a very personal endeavor and controlling his environment so that he can employ what he sees as his most effective strategy: reading out loud. Partly because of his reliance on this strategy he finds it difficult to function as a reader in a public setting, such as the job site, and compensates for this by pretending that he can read better than he can or avoiding print and relying on social networks to get the information he needs to function. Cliff, then, uses a combination of effective strategies, prior knowledge and background information and nontext-based strategies to navigate his literacy world that he has entered both by choice and need. Clearly there are many strengths that Cliff and others like him bring to the reading program and to the literacy environment at the workplace.

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WHAT L2 READERS REMEMBER: IS IT RELATED TO THEIR AWARENESS OF TEXT STRUCTURE?

Sally A. Hague
Duval County Schools

Steve Olejnik
University of Georgia

An important reading skill is the ability to distinguish the more important ideas in a text from the less important ones. Research in first language (L1) has suggested that such a skill may be developmental in nature. For example, it has been shown that younger readers do not discern superordinate ideas from subordinate ideas (e.g., Tierney, Bridge, & Cera, 1978–79), nor do less able readers perform as well on this task as their more able counterparts (e.g., McGee, 1981). Other L1 research has proposed a possible relationship between the reader's awareness of the structure of a text and the recognition of important ideas (e.g., McGee, 1982; Meyer, 1979; Meyer, Brandt, & Bluth, 1980).

Reading in a foreign language is cognitively more demanding than reading in the native language. Previous research has shown that already existing reading skills in L1 can help the reader with a second language (L2) reading task. For instance, Hague (1989) demonstrated that proficient L2 readers, who were aware of text structure in English, were able to transfer their awareness to a foreign language reading task, and that this awareness aided in both the recollection and retention of ideas presented in the text. However, few investigations of L2 reading have explored the type of information that the L2 reader remembers.

The second language researchers who have investigated what L2 readers remember have obtained few generalizable results. For example, Connor (1984) found no difference in the number of superordinate and subordinate ideas that the L2 readers in her study remembered. However, because this and other studies of a similar nature have used students studying English as a second language (ESL) as subjects, the researchers have not been able to explain their findings in terms of the reader's already existing L1 knowledge due to the varied language backgrounds of the subjects. Moreover, these studies have required subjects to demonstrate comprehension by writing a free recall in English (L2), a procedure which likely masks what the reader actually understood (Bernhardt, 1987; Lee, 1986).

This paper, then, presents the second portion of a two-part study (Hague, 1989) that investigated the relationship between awareness of text structure in a native language (English) and reading in a second language (Spanish). As in the first part, this portion continues to look at the transfer of awareness of text structure from L1 to L2 and its effects on L2 reading comprehension. Whereas the first portion of the study examined this issue in terms of the total number of ideas that second language readers remembered and retained, this portion of the study addresses the more specific relationship between awareness of text structure and the recall of important ideas in the text.

Two questions guided the research: (a) Is awareness of text structure in L2 associated with the recall of important ideas in a text; and, (b) Do structure-aware L2 readers recall a greater proportion of important ideas than minor details than nonaware readers? This study differs from previous research in two important aspects. First, the subjects were able to demonstrate an existing awareness of text structure in L1; and, second, the free recall task used to assess comprehension in L2 was done in English, the native language of the subjects.

METHOD

Subjects

The subjects in this study were high school students enrolled in their fourth year of Spanish as a foreign language. From an original pool of 92 subjects attending 7 area high schools, 62 met the criteria necessary to remain in the study: (a) a demonstrated awareness of text structure in English, and (b) being a native speaker of English. The 62 subjects comprised 34 seniors, 20 juniors, and 8 sophomores; 23 were male and 39 were female. (See Hague, 1989 for a more detailed description of the prior awareness test used in this study.)

In addition to the measure used to determine prior awareness of text structure in English, data were collected on each subject's reading achievement in both languages. In English, the reading comprehension percentile score of the Stanford Achievement Test (SAT) was obtained for each student; the average score was 86.8%. In Spanish, the Spanish version of the Cooperative Foreign Language Tests (MLA), Level L (Modern Language Association, 1963) was administered; the average score was 31.88 out of a possible 50 points.

Procedures

Four passages on dehydration (Meyer & Freedle, 1984) were translated into Spanish for use in the study. The four passages contained essentially the same information, differing only in text structure (i.e., comparison, problem/solution, causation, collection). Subjects were randomly assigned to one of the four passages. During the data collection, subjects read the assigned passage and wrote a free recall. One week later, subjects wrote a delayed recall without rereading the passage. Because L2 productive skills lag behind receptive skills, the free recalls were written in English to maximize the subjects' ability to convey everything that was understood during reading.

The recall protocols were scored by the researcher and two colleagues trained in the scoring procedure. Each immediate and delayed protocol was given four scores. The first score was a text structure awareness score, a score that was intended to reflect the degree to which the subject used the same text structure in writing the free recall as the author used in writing the passage. Meyer (1975, 1977) has hypothesized that this procedure opens a window to the thinking processes used during reading and is a valid indicator of the reader's awareness of a text's structure. An 8-point scale was developed for each passage, with a score of 8 reflecting total use of the text structure in question and a score of 1 reflecting no use of the appropriate text structure (Meyer, Brandt, & Bluth, 1980; Richgels, McGee, Lomax, & Sheard, 1987).

The second score was the total number of idea units contained in the recall protocol. Four templates were developed using Meyer's original content structures (B. Meyer, personal communication, October 31, 1987), and they were used to quantify the number of idea units that each subject wrote in the protocol. Each passage contained 38 idea units. (See Hague, 1989 for the analyses of total idea units.)

The third and fourth scores were the percentage of superordinate and subordinate idea units contained in the free recall protocol. The four templates used to determine the number of major and minor idea units were also developed from the original content structures provided by Meyer. The superordinate idea units were those from levels one and two of the content structure, whereas minor ideas were those from levels three and below. The comparison, problem/solution, and causation passages each had the same number of superordinate and subordinate idea units. However, since the collection passage differed, raw scores were converted to percentages and used as the unit of analysis for each passage.

RESULTS AND DISCUSSION

The data were analyzed using the General Linear Model. English reading ability (SAT) and Spanish reading ability (MLA) were used as covariates. The text structure awareness score was treated both as a continuous and categorical independent variable in different analyses. Time and the structure of the passage were categorical independent variables. Dependent variables included the percentage of superordinate idea units, the percentage of subordinate idea units, and the difference between the percentage of superordinate and subordinate idea units.

Is Awareness of Text Structure in L2 Associated with Recall of Important Ideas?

The free recall protocols were used to determine the percentage of superordinate idea units that each subject recalled at the time of immediate recall. The protocols were also used to measure each subject's awareness of text structure in L2. The first analyses used English reading ability, Spanish reading ability, text structure awareness, and passage type as design factors with the percentage of superordinate idea units recalled as the outcome of interest. Table 1 presents summary statistics for the average percentages of superordinate idea units that were recalled from each passage at the time of immediate and delayed testing.

At the time of immediate recall, there were no significant interactions. There were, however, statistically significant main effects for awareness of text structure, $F(1, 55) = 33.61$, $p = <.001$ and for the type of passage, $F(3, 55) = 9.03$, $p = <.001$. Additional analyses revealed that each increase in degree of text structure awareness was associated with an increase of 4.77% in superordinate idea units. Examining

Table 1

Summary Statistics for the Average Percentage of Superordinate Idea Units for Each Passage at Immediate and Delayed Testing

Passage	Immediate Superordinate	Delayed Superordinate
Comparison	43.29	25.47
Problem/Solution	30.76	27.35
Causation	32.66	27.57
Collection	47.37	33.35

further the passage main effect, the Fisher procedure indicated statistically significant differences between the comparison and problem/solution passages ($p = < .002$), the comparison and causation passages ($p = < .007$), the collection and problem/solution passages ($p = < .001$), and between the collection and causation passages ($p = < .001$). Therefore, there was a consistent positive relationship between awareness of text structure and recall for all four passages, but the average percentage of superordinate idea units recalled was greater for some types of passages than for others. Regardless of the degree of awareness, students recalled more superordinate ideas from the comparison and collection passages.

At the time of delayed recall, there was a statistically significant interaction between awareness of text structure and the passage that was read, $F(3, 52) = 4.20$, $p = < .01$. This relationship was further explored by building separate regression models for each passage, revealing a positive relationship between text structure awareness and the proportion of superordinate idea units recalled for each passage. Each increase in degree of text structure awareness was associated with an increase of 5.73% ($p = < .02$) of superordinate ideas on the comparison passage, .81% ($p = < .658$) on the problem/solution passage, 5.3% ($p = < .108$) on the causation passage, and 11.13% ($p = < .001$) on the collection passage. Fisher's test of Least Significant Difference (LSD) indicated a statistically significant difference between the comparison and problem/solution passages ($p = < .048$) and between the collection and problem/solution passages ($p = < .001$).

The results of these analyses, using text structure awareness as a continous variable, suggest that awareness of text structure in L2 is positively related to the recall of important ideas in a foreign language text. Regardless of the passage that was read, an increase in awareness of the structure of that passage was paralleled by an increase in the percentage of superordinate idea units contained in the recall protocol. At the time of immediate recall, students remembered more superordinate ideas from the comparison and collection passages. On the delayed recall, the relationship between text structure awareness and recall was stronger for the comparison and collection passages than for the problem/solution and causation passages.

Meyer and Freedle (1984) have argued that texts vary in their degree of organization from loosely structured text such as a collection of descriptions to more highly structured texts such as comparison or problem/solution. Accordingly, the structure-aware reader uses the organizational pattern as a memory aid and has better recall of the important ideas in a more structured text because they are highly interrelated. The present study only partially supports this notion with respect to readers of a foreign language.

Though awareness of text structure and recall of main ideas were positively related, students who read the comparison and collection passages remembered more superordinate ideas than those who read the problem/solution and causation passages. The superior recall of main ideas on the collection passage seems to defy theory. Meyer (1984), however, experienced similar results and conjectured that the relatively high number of superordinate idea units recalled was due to more superordinate idea units being in this passage than in the other passages. An alternative explanation may be that good readers have had more exposure to this type of passage than to the other types, and they have developed some other strategy to compensate for the lack of organization. This might be particularly true for foreign language readers as much of their initial reading experience is with this type of text.

Do Structure-aware L2 Readers Recall a Greater Proportion of Important Ideas Than Minor Ideas?

The second set of analyses examined the proportion of superordinate idea units in relation to the proportion of subordinate idea units that were recalled by the foreign language readers. In these analyses, the construct of text structure awareness was treated as a categorical independent variable rather than as a continuous measure.

Because we were interested in differences among the consistent users, the inconsistent users, and the nonusers of text structure, we created three levels of text structure awareness. Subjects scoring a 4 or better on both the immediate and delayed text structure awareness scales were categorized as consistent users of text structure. Subjects scoring 4 or better on the immediate measure and below 4 on the delayed were considered inconsistent users of text structure. Those subjects who scored below 4 on both the immediate and delayed were labeled nonusers. Table 2 presents the average percentage of superordinate and subordinate idea units recalled by each level of text structure awareness on each passage.

A mixed model using Spanish reading ability, English reading ability, level of text structure awareness, type of passage, and time as design factors and the difference in superordinate and subordinate idea units as the dependent variable revealed that the three-way interaction between time of recall, level of text structure awareness, and passage was not significant, $F(6, 45) = 1.23$, $p = <.308$. Therefore, it was concluded that any relationship between the level of text structure awareness and the passage that was read in terms of the difference in superordinate and subordinate idea units was the same at the immediate and delayed times of recall. The data were then reexamined collapsing across time.

After eliminating time from the design, there was a statistically significant two-way interaction between the level of text structure awareness and the passage read, $F(6, 45) = 2.63$, $p = <.029$. In other words, the difference between the proportion of superordinate idea units recalled and the proportion of subordinate idea units recalled varied according to the combination of passage and level of text structure awareness in Spanish. The following discussion summarizes these relationships (see Figure 1).

Table 2

Average Percentage of Superordinate and Subordinate Idea Units for Each Passage by Level of Text Structure Awareness in Spanish

	Immediate		Delayed	
Passage	Superordinate	Subordinate	Superordinate	Subordinate
Comparison				
Level 1	56.50	55.33	37.50	4.00
Level 2	44.00	52.25	14.25	2.50
Level 3	18.66	14.00	10.33	.00
Problem/Solution				
Level 1	26.75	43.25	28.25	4.75
Level 2	43.60	49.20	30.00	1.40
Level 3	20.37	25.75	19.50	1.37
Causation				
Level 1	39.77	64.11	35.00	4.77
Level 2	34.50	66.00	22.00	4.50
Level 3	22.00	22.75	17.00	1.75
Collection				
Level 1	59.87	54.25	47.62	4.06
Level 2	48.00	31.00	15.66	.66
Level 3	21.66	37.66	11.33	1.66

Note. Level 1 = Consistent users; Level 2 = Inconsistent users; Level 3 = Nonusers.

On the comparison passage, the consistent users recalled 18.5% more superordinate ideas than subordinate ideas; the inconsistent users recalled .36% more superordinate than subordinate; and, the nonusers recalled 6.99% more superordinate ideas than subordinate ideas. Fisher's LSD procedure indicated a statistically significant difference between the consistent users and the inconsistent users ($p = <.020$). No other pairwise contrasts were significant.

On the collection passage, the consistent users recalled 25.3% more superordinate ideas than subordinate ideas; the inconsistent users recalled 12.8% more; the nonusers recalled 1.96% more superordinate than subordinate idea units. Fisher's LSD procedure indicated a statistically significant difference between the consistent users and the nonusers ($p = <.003$). No other pairwise contrasts were significant.

On the causation passage, the consistent users recalled 3.1% more superordinate idea units than subordinate idea units and the nonusers recalled 8.3% more. However, the inconsistent users recalled 8.8% more subordinate idea units than superordinate ideas. None of the pairwise contrasts was significant nor were any of the observed differences on the problem/solution passage statistically significant.

The results of these analyses suggest a general tendency for L2 readers to remember a greater proportion of the important ideas than minor details in a short reading selection. Furthermore, the results present some evidence that this tendency is related to the reader's awareness of text structure. In two instances, the consistent users of text structure recalled a statistically greater proportion of the important ideas than readers who were either not consistent in their use of text structure or who did not

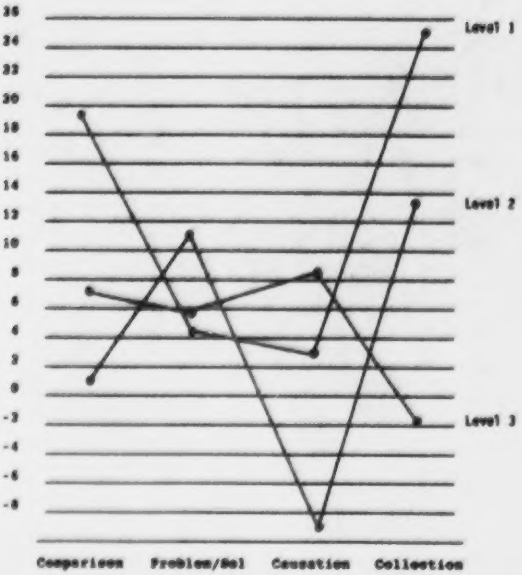

Figure 1. Average Difference in Proportion of Superordinate and Subordinate Idea Units for Each Level of Text Structure Awareness.

use text structure at all. These findings would seem to support Meyer's (1979) contention that readers who are aware of a text's structure process text differently than readers who do not have this awareness and, consequently, remember more of the main ideas contained in a passage than the relatively minor ideas.

The erratic performance of the inconsistent users of text structure on the causation passage, however, provides the most convincing evidence of a possible link between awareness of text structure and the ability to recall the important ideas contained in an L2 text. Their failure to activate consistently their awareness of the causation structure was paralleled by an increased tendency to focus on minor details rather than on the gist of the passage. On the comparison passage as well, this group appeared not to distinguish between important and minor details, recalling equal proportions of both. In other words, the inconsistent users of text structure performed just as Meyer (1977) would predict a reader unaware of structure to perform, approaching the text in a random and unsystematic manner.

CONCLUSIONS

Success in school depends on a student's ability to make the transition between learning to read and reading to learn. An important part of reading to learn is the ability to distinguish the more important ideas in a text from those that are less important. Similarly, as students of a foreign language progress in their study of that language, their success is increasingly dependent on their ability to read to learn also. And, to succeed, they, too, must be able to differentiate the important ideas and minor details in a reading selection.

The results of this study provide us with some clues as to the information that second language readers remember. Awareness of text structure in L1 is a construct that certain readers are able to engage during an L2 reading task, and, as this study demonstrates, it is positively associated with the recollection of the important ideas in a text. Not only was there a positive relationship between awareness of text structure and the recall of superordinate ideas, but structure-aware readers also remembered a greater proportion of main ideas than minor ideas.

Several implications may be drawn from the results of this study. First, more research is needed to determine the L1 reading skills that are potentially useful to the L2 reader. Specifically, we need to know what skills the L2 reader already possesses and under what conditions such skills transfer to the L2 reading task. Second, because this study has shown that awareness of text structure is related to the recall of important information, there is a need to explore the instructional ramifications of text structure awareness.

Finally, there is an implied need to examine the types of structures that are inherent in texts written in different languages. Although students may be aware of the structures embedded in their native language, this awareness would be of no practical use if similar structures do not exist in the L2 text. However, identification of and instruction in the structures typical of the target language may assist L2 readers in their attempts to read to learn.

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FACTORS AFFECTING SECOND LANGUAGE TEXT COMPREHENSION

Keiko Koda
Ohio University

The close relationship between first language (L1) and second language (L2) reading suggests that both share a number of subcomponent processes, and some basic skills are transferred to L2 reading (e.g., Cummins, 1979, 1984; Koda, 1988, 1989; Roller, 1988; Sarig, 1987; Skutnabb-Kangas & Toukomaa, 1976). However, other studies investigating differences between L1 and L2 reading have consistently shown that inefficient lower level processing (i.e., symbol identification and word recognition) is common in L2 reading—even among advanced learners. Eye movement research, for example, has demonstrated that L2 readers make considerably longer and more frequent fixations than L1 readers (e.g., Oller, 1972; Oller & Tullius, 1972; Saito, 1989). Similarly, other studies have verified that L2 readers are slower and less accurate in word recognition (e.g., Albert & Obler, 1978; Macnamara, 1970; Segalowitz, 1986; Vasos, 1983). Deficient lower-level processing strains short-term memory capacity and inhibits text from being integrated as a meaningful sequence (e.g., Daneman & Carpenter, 1980; Kintch, 1974; Perfetti, 1987; Stanovich, 1982). Moreover, if readers are overly involved in lower-level processing operations, less attentional capacity is available for higher-level cognitive activity—such as integrating textual information and drawing upon prior knowledge—and comprehension suffers.

The low-quality verbal processing skills of L2 readers apparently is attributable to limited L2 linguistic knowledge (e.g., Clarke, 1980; Cziko, 1978, Devine, 1987; Eskey, 1988; Hudson, 1982). Little is known, however, with respect to which specific aspects of linguistic knowledge influence verbal processing and reading comprehension skills. The purposes of the present study were (a) to identify factors contributing to L2 reading comprehension, (b) to explore the effects of different aspects of L2 linguistic knowledge on reading comprehension, and (c) to examine factors differentiating good from poor L2 readers. The study was conducted with beginning L2 readers of Japanese. In the section that follows, the Japanese orthographic systems as well as grammatical features of Japanese are briefly described.

JAPANESE LANGUAGE

Orthography

Two distinctive orthographic systems are used in Japanese: Kana and Kanji. Kana is a sound-based script called a syllabary, in which the syllable is the basic unit of representation. Two kinds of syllabaries are used: Hiragana and Katakana. The second system, Kanji, literally means "Chinese characters." Kanji is a meaning-based script, called a logography, wherein one character represents the meaning of a whole word or morpheme.

The two systems—syllabaries (Kana) and logography (Kanji)—occur concurrently in normal Japanese sentences. Because of their function-specific nature, the use of the multiple systems facilitates reading in Japanese (Sakamoto & Makita, 1973). Hiragana is used primarily for function words such as case-marking particles, verb, adjective, and adverb inflections, while Katakana is used exclusively for borrowed words from Western languages. Kanji is used exclusively for content words. Taylor (1981) estimates that in an average sentence about 65% is comprised of Hiragana, 25–30% of Kanji, and 4% of Katakana.

Morphosyntactic System

Japanese is an agglutinative language, highly marked for case. Typologically, it is an SOV (subject-object-verb) language, exhibiting many of the morphosyntactic features associated with its classification (Clancy, 1985). For example, well developed case-marking particles (i.e., a grammatical marker indicating a case role of nouns) are all postpositional, and major recursive devices such as subordinate clauses and relative clauses are generated in the left to head nouns.

For syntactic marking, Japanese makes use of both case-marking particles and word order. Presumably, this dual syntactic marking system influences procedures used in both sentence production and comprehension. In fact, recent studies of Japanese sentence processing provide evidence that children acquiring Japanese as their L1 formulate an interpretive strategy that takes both word order and case marking particles into account (Hakuta, 1982; Hayashibe, 1975). It is of particular interest, therefore, to determine how morphosyntactic features specific to Japanese influence the reading comprehension strategies of L2 learners of Japanese.

METHOD

Subjects

Subjects were college students enrolled in a first-year Japanese language program during the 1987–88 academic year. Out of 59 first-year students, native speakers of Korean and Chinese ($N = 20$) were eliminated because of their experience with Chinese characters in their L1. The remainder of 39 students were the subjects of the present study (35 English, 2 Spanish, 1 Arabic, and 1 Portuguese speakers). The data were collected at the end of the first quarter after the students had studied Japanese for approximately 50 hours.

The major objective of the Japanese program was to develop communicative skills in both spoken and written Japanese. Classroom instruction focused on oral communicative activities. Although a brief explanation was given on each grammatical point in the class, little time was spent on mechanical drills. Instead, students were required to do grammar drills individually at a Language Laboratory. Since a main text was written in the authentic Japanese script, Hirangana syllabary was introduced at the very beginning of the quarter. As soon as students had mastered Hirangana, Kanji characters were introduced a few at a time. A total of 40 characters and approximately 80 Kanji words composed with the 40 basic characters were taught during the first quarter.

Test Batteries

Language proficiency measures. The language proficiency test contained two sections: grammar and vocabulary. The grammar component included two subsections, designed to measure knowledge of word-formation rules and case-marking particles. Vocabulary knowledge was measured through three subtests: (a) translation, (b) word grouping, and (c) sentence completion. Multiple-choice items were used in the word grouping and sentence completion tests.

Reading comprehension measures. Two reading measures were utilized to obtain information regarding comprehension at different levels: a cloze test for local-level (or intra-sentential) understanding and a paragraph comprehension test for more global text-level comprehension. For the cloze test, a short paragraph—syntactically and lexically controlled—was constructed. A sixth-word-deletion format was used. The test contained approximately 120 words totaling 20 deletions. In scoring, an "acceptable" scoring criteria was utilized: Any word considered semantically and syntactically appropriate was counted as correct. This form of scoring is generally correlated more highly with other L2 reading comprehension measures than an "exact" method (e.g., Alderson, 1983; Shohamy, 1983).

The paragraph comprehension test consisted of four paragraphs. These were syntactically and lexically controlled, and of variable length (80–150 words). A comprehension test of five short-answer questions was devised for each paragraph. These questions assessed the accuracy of the reader's conceptual synthesis of the content, as well as command of factual knowledge presented in the test materials. The subjects responded in English. To control for background knowledge, test content in both cloze and paragraph comprehension items was based on familiar topics so that the subjects could handle them with general knowledge.

Word recognition speed test. Word recognition speed was tested in three discrete conditions: Kanji (Chinese characters), unfamiliar syllabary, and familiar syllabary. In the Kanji condition, 30 frequent Kanji words were given and the subjects were required to write the meaning of each word in English (i.e., word translation) as quickly as possible. In the unfamiliar syllabary condition, 30 words taken from the text, normally written in Kanji, were presented in a syllabary. Because the subjects were not visually familiar with the stimuli words (although they were phonetically and semantically), they were forced to go through a symbol-by-symbol processing to obtain the meaning. In the familiar syllabary condition, another 30 words from the textbook were presented in customary syllabary (Hiragana) form. A 3-minute response time was used in each of the three tests, given 2 days apart.

Symbol identification speed task. Thirty nonsense syllabary symbol strings, each consisting of two to four symbols, were constructed for this task. The symbol strings were projected on a screen, one at a time. An electric timer was used to control the presentation duration (1 second). The subjects were required to identify what they observed in each stimulus presentation. They were allowed to use either syllabary or Romanized Japanese (Roman-Alphabetic script) in their responses.

Test Administration

All of the tests were given during class periods as a part of the instructional activities.

RESULTS AND DISCUSSION

Factors Influencing the Development of L2 Reading Competence

Table 1 presents the correlations among linguistic knowledge (i.e., word-formation rules, case-marking particles, and vocabulary), verbal processing skills (i.e., word recognition and symbol identification), and reading comprehension (i.e., cloze and paragraph comprehension). Two language proficiency subtest scores (i.e., case-particles and vocabulary) were highly correlated with the two reading comprehension measures. The correlation was particularly high between particle knowledge and cloze, and between vocabulary knowledge and paragraph comprehension. Word-formation knowledge was correlated with cloze slightly more highly than with paragraph comprehension. Overall, however, the correlation between word-formation knowledge and reading comprehension was not strong relative to the other two aspects of linguistic knowledge (vocabulary and case-particles).

High correlations were also found between the two reading comprehension measures and word recognition. Symbol identification was highly correlated with the cloze test, but not with paragraph comprehension. Finally, a relatively high correlation was found between the two reading test scores.

To isolate the factors contributing to L2 reading comprehension, stepwise multiple regression analyses were conducted for each of the two reading comprehension mea-

Table 1

Correlations among Linguistic Knowledge, Verbal Processing Skills, and Reading Comprehension

	2	3	4	5	6	7
1. Word-Formation Knowledge	.52	.73	.64	.60	.51	.43
2. Particle Knowledge		.47	.59	.56	.73	.55
3. Vocabulary Knowledge			.77	.48	.70	.81
4. Word Recognition				.67	.67	.54
5. Symbol Identification					.65	.39
6. Cloze Test						.56
7. Paragraph Comprehension						

sures (see Table 2). The following five factors were entered into the regression model as predicting variables: word recognition speed, symbol identification speed, particle knowledge, knowledge of word-formation rules, and vocabulary knowledge. In the cloze test, particle knowledge is of the greatest significance, accounting for almost 60% of the variance. This result can be explained, in part, by the fact that case-particles comprise 30% of the deletion items. It is important to note, however, that case-particles provide essential information regarding the semantic relationships among content words. Presumably, this information is vital for meaning construction particularly when the context does not offer adequate clues—as is the case in the cloze test. Vocabulary knowledge was also found statistically significant in this analysis, explaining 15% of the remaining variance after removing the portion accounted for by particle knowledge.

In contrast, in paragraph comprehension vocabulary knowledge was found to be the most statistically significant factor, accounting for 64% of the variance, followed by particle knowledge and symbol identification, being responsible for 12% and 3% of the remaining variance, respectively.

The regression analyses thus revealed that vocabulary knowledge was a significant factor in both of the two reading measures. This result is consistent with findings from previous L1 and L2 reading research, and suggests that knowledge of content-word meanings significantly enhances reading comprehension. Particle knowledge was also found to be statistically significant in both reading tests, indicating that in addition to individual word meanings, information regarding the semantic relations among the words is essential to sentence comprehension. Interestingly, vocabulary knowledge was found to be the most significant factor in the paragraph comprehension test, whereas particle knowledge was of the greatest significance in the cloze test. Different factors thus accounted for the variance in each test to varying degrees, suggesting that knowledge sources activated during the task performance are constrained by the nature of the task requirement in different reading measures.

Despite the fact that high correlations were found between word recognition and two reading comprehension measures ($r = .67$ and $r = .54$), word recognition was not

Table 2

Summary of Stepwise Regression Analysis

Steps and Variables	R	Increase in R^2	F	p
Paragraph Comprehension				
1. Vocabulary Knowledge	.81	.64	42.29	.0001
2. Particle Knowledge	.55	.12	11.79	.0022
3. Symbol Identification	.39	.03	3.45	.0463
Cloze Test				
1. Particle Knowledge	.73	.59	35.52	.0001
2. Vocabulary Knowledge	.70	.15	13.44	.0012

Table 3

Test Performance of Good and Poor L2 Readers

Variables	Good		Poor	
	M	*SD*	*M*	*SD*
Word-Formation Knowledge (30.0)	20.6	3.78	16.3	5.08
Particle Knowledge (30.0)	25.7	2.91	16.8	4.82
Vocabulary 1 (Translation: 20.0)	13.6	1.43	11.3	2.21
Vocabulary 2 (Word Grouping: 15.0)	11.3	1.89	9.1	3.75
Vocabulary 3 (Sentence Completion: 15.0)	13.5	1.51	11.7	2.79
Word Recognition (Unfamiliar: 30.0)	10.0	8.07	5.8	2.97
Word Recognition (Familiar: 30.0)	18.7	6.18	10.8	4.54
Word Recognition (Kanji: 30.0)	25.2	4.59	17.8	8.36
Symbol Identification (30.0)	13.5	3.87	7.4	2.55

Note. Maximum scores are indicated in the parentheses with the variable names.

found statistically significant for either. Similarly, symbol identification was non-significant for the cloze test in spite of the high correlation between the two scores ($r = .65$). Thus, the importance of verbal processing skills was much smaller than might have been anticipated from the correlations. This, perhaps, was a consequence of the strong relationship between word recognition and both vocabulary ($r = .77$) and particle knowledge ($r = .59$) as well as that between symbol identification and particle knowledge ($r = .56$).

Factors Differentiating Good from Poor L2 Readers

Based on the two reading comprehension test scores, a group of "good" readers and a group of "poor" readers were selected. Two groups of 9 readers with the highest 10 and the lowest 10 test scores were chosen from the first 39 subjects. The means and the standard deviations of the two groups for seven test scores are listed in Table 3.

To identify factors differentiating the two groups, a stepwise discriminant analysis was performed. The following five factors were entered in the analysis: word-formation knowledge, particle knowledge, vocabulary knowledge, word recognition speed, and symbol identification speed. It was found that particle knowledge was the most significant factor distinguishing good from poor L2 readers, followed by symbol identification speed (see Table 4).

The data thus demonstrates that knowledge of case-marking particles is a highly significant factor not only facilitating reading comprehension but also differentiating good from poor L2 readers of Japanese. These results indicate that (a) the grammatical features signaling the syntactic structure in the target language (case-marking particles, in this case) play a critical role in reading comprehension, and (b) successful L2 readers utilize this knowledge effectively in their comprehension process. These, in turn, suggest that the grammatical features essential to sentence comprehension are language specific. As discussed earlier, Japanese employs a duel syntactic marking

Table 4

Summary of Stepwise Discriminant Analysis

Steps and Variables	Increase in R^2	F	p
1. Particle Knowledge	.58	25.13	.0001
2. Symbol Identification	.19	4.58	.0358

system, utilizing both word order and case-marking particles. Although the most preferred—or canonical—word order in Japanese is SOV, in common oral discourse word-order is quite flexible preceding the main verb (Clancy, 1985). Unlike the word-order dominant languages such as English, the syntactic structure of Japanese cannot always be perceived in a linear fashion. Moreover, Japanese is a heavily context-dependent language and permits extensive ellipsis—that is, linguistic elements that can be understood from the context are often omitted (Kuno, 1978; Tsutsui, 1984). In fact, in a pragmatically appropriate context, elliptical sentences (e.g., sentences without a subject or a direct/indirect object) are not only grammatically correct, but also stylistically more preferable in many cases. Thus, the extensive ellipsis exercised in Japanese discourse makes word-order even less reliable as a syntactic-marking device. Consequently, as is demonstrated in the present study, knowledge of case-marking particles and ability to utilize this knowledge are crucial for sentence comprehension in Japanese. Hence, the present findings corroborate those from earlier studies, and suggest that ability to use grammatical knowledge significantly influences comprehension, and therefore accounts, at least in part, for individual differences both in L1 and L2 reading (Cowan, 1976; Cziko, 1980; Tyler & Nagy, 1985).

Symbol identification speed was another significant factor separating good from poor L2 readers. As shown in Table 3, the difference in word recognition between the two groups was also greater than other factors. These results, coupled with high correlations between verbal processing speed and reading comprehension, seem to suggest that efficient verbal processing skills are also important for successful reading performance. Interestingly, the difference in vocabulary knowledge was relatively small despite the fact that this factor was found statistically significant in both of the two reading comprehension measures. This finding would seem to indicate that vocabulary knowledge alone might not be sufficient for fluent reading, and that L2 readers need to develop skills to retrieve this knowledge with an adequate speed.

To summarize, the data from the present study demonstrate that (a) vocabulary knowledge significantly contributes to L2 reading comprehension; (b) two types of grammatical knowledge (word-formation rules and case-marking particles) have differential effects on text comprehension in Japanese; and (c) particle knowledge and symbol identification speed are two major factors differentiating good from poor L2 readers. These results, in turn, suggest that (a) knowledge of content word meanings play an important role in reading comprehension, (b) some syntactic features inherent in the target language constrain essential knowledge sources utilized in the L2 reading comprehension process, and (c) efficient verbal processing skills are related to successful reading performance. Because of the limited sampling, the study findings may not be generalizable to other L2 learners at different proficiency levels. Nonetheless, the study represents an examination of relatively unexplored—yet significant—dimensions of L2 reading research. Subsequent studies may verify the findings of the present results.

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